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DEPARTMENT OF TRANSPORTATION AND RELATED AGENCIES APPROPRIATIONS FOR 1995

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BEFORE A

SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES ONE HUNDRED THIRD CONGRESS

SECOND SESSION

SUBCOMMITTEE ON THE DEPARTMENT OF TRANSPORTATION AND RELATED AGENCIES APPROPRIATIONS

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DELACROIX DAVIS III, RICHARD E. EFFORD, CHERYL L. SMITH, and LINDA J. MUIR,
Subcommittee Staff

PART 6

DEPARTMENT OF TRANSPORTATION:

Federal Aviation Administration 415

RELATED AGENCY:

National Transportation Safety Board 1



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	Page
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DEPARTMENT OF TRANSPORTATION AND RELATED AGENCIES APPROPRIATIONS FOR 1995

THURSDAY, MARCH 3, 1994.

NATIONAL TRANSPORTATION SAFETY BOARD

WITNESSES

CARL W. VOGT, CHAIRMAN

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RALPH E. JOHNSON, DEPUTY DIRECTOR, OFFICE OF SURFACE TRANSPORTATION SAFETY

OPENING REMARKS

Mr. PRICE [presiding]. Good morning. The bells tell us that we have a journal vote. We will start because we can get underway for a few moments, and then resume with a minimum amount of interruption.

Today, the Subcommittee will receive testimony on the fiscal year 1995 budget request of the National Transportation Safety Board. The Board's request this year is a lean one, totaling \$37.3 million. This would be an increase of only \$200,000 over the fiscal year 1994 level.

The National Transportation Safety Board has had another busy year investigating a number of tragic accidents across all modes of transportation. Last year, you were involved in several multimodal transportation accident investigations. We look forward to hearing this morning about your work in determining the causes of these accidents.

The Safety Board also conducts safety studies, evaluates the effectiveness of the Department of Transportation's safety activities, and reviews appeals of adverse certificate and civil penalty actions by the Department of Transportation.

Our principal witness is Mr. Carl Vogt, Chairman of the Safety Board. Also, we are pleased to have a new board member, Jim Hall, in the audience. Accompanying Mr. Vogt are a number of associates from the Board's staff.

Chairman Vogt, we are pleased to welcome you, and your supporting staff, to the Committee. We will insert your statement in

the record in its entirety. You can summarize that and then we will proceed with the questions.

Mr. VOGT. Thank you, Mr. Price. I have a very short statement, which I would like to present at this time. Before I do that, I would like to take the opportunity to introduce some of the staff with me today.

On my right is Craig Keller. He is the Director of our Budget and Financial Policy Office. To his right is Dr. Bernie Loeb, Director of our Office of Research and Engineering, and Dr. Loeb will conduct a brief review for you of some of the electronic simulations which we develop.

On my immediate left is Tim Forte', Director of our Office of Aviation Safety; and on his left is Barry Sweedler, Director of the Office of Safety Recommendations; and on his left is Ralph Johnson, who is the Deputy Director of the Office of Surface Transportation Safety.

You already know Jim Hall. We are very delighted to have him on board and have him with us today.

Since we last appeared before the Ccommittee, a great deal has happened, as you pointed out in your opening remarks. For example, 1993 was the best year in terms of aviation fatality statistics since 1980. There were no passenger deaths on major U.S. scheduled airlines. There was one death of a crewman due to being hit by a propeller in 121 operations.

I note that 1993 was the best year since 1980, but in between 1980 and now, we have had some very tragic accidents, and statistics, as we all know, can be deceiving. But I think in general it is safe to say 1993 was a very extraordinarily safe year in commercial transport aviation in this country.

1993 AVIATION ACCIDENTS

Eighteen of the 1993 fatalities occurred when a Jetstream 31 crashed while attempting to land at the Hibbing, Minnesota, airport on December 1. This accident, as well as an accident which occurred in Columbus, Ohio, in January prompted the board to expand on an already planned safety study of commuter airline pilot training.

We had planned this study based on several accidents which occurred during training in check-ride operations at night. We are now going to broaden its scope and look into issues such as pilot selection and training procedures, the use of flight simulators in training as distinguished from using actual aircraft time, flight and duty time standards and practices, including the numbers of hours on duty of pilots and crew members, and the FAA fitness determination surveillance and oversight of the commuter aircraft industry, an industry which is burgeoning as you know.

This study will be conducted by the Offices of Aviation Safety and Research and Engineering. We are hoping to get this before the board by the end of the year.

ALABAMA AMTRAK ACCIDENT

Also in 1993, Amtrak suffered the worst accident in its history and the worst railroad accident which the board has ever investigated. This occurred when a barge struck the support structure

of a CSX bridge north of Mobile, Alabama. The train derailed into the waters of the Bayou Canot. Five crew members and 42 passengers died in the accident.

Since we briefed this panel last fall, a three-day Safety Board public hearing was convened in Mobile. We are currently analyzing all of the materials which were acquired during the on-site investigation, during the hearing and otherwise, and we will be coming forward with a report, hopefully in May or June of this year, although that is a very strict time schedule for us. We are expediting it to the maximum extent possible.

My prepared remarks detail some specific issues we are examining in this accident, but I can tell you that we are particularly concerned with marine operations in reduced visibility, rail passenger car crashworthiness and bridge protection.

DRUGS AND ALCOHOL

In 1993, we also saw considerable progress in the Safety Board's work on eliminating risk to the public by the use of drugs and alcohol. Two more States, Texas and Idaho, have adopted administrative license revocation. Many States are strengthening their laws against underage drinking and driving. The Senate has acted on legislation embodying many of our recommendations, and we certainly applaud the work of Congressman Wolf, a Member of this subcommittee, on the House version, which he has sponsored. And we stand very ready and anxious to help wherever we can on this legislation.

Also, after a number of years of effort on the part of the Safety Board, final rules have been issued calling for drug and alcohol testing of transportation workers in safety-sensitive positions. We are currently reviewing those rules.

1995 BUDGET REQUEST

With respect to our budget, as you mentioned in your opening remarks, it is very tight. The overwhelming bulk of our fiscal year 1995 request is dedicated, as always, to salaries. Over 72 percent of our budget goes to salaries and benefits, and we take a great deal of pride on fulfilling our mandate with a small, efficient, highly motivated and trained staff.

We are requesting just \$37,305,000, which will support an FTE level of only 343. This is less than a 1 percent increase over last year's appropriation. And the \$200,000 hike, I would point out, does not even take into account increases for inflation at the OMB rate of 2.9 percent per annum. So we are looking at a net decrease in our operating funding by \$1.6 million or so.

[The prepared statement of Carl Vogt follows:]



**National
Transportation
Safety Board**

Washington, D.C. 20594

Safety Information

Testimony of

Carl W. Vogt, Chairman

National Transportation Safety Board

before the

Subcommittee on Transportation and Related Agencies

Committee on Appropriations

House of Representatives

Regarding

Fiscal Year 1995 Budget Request

March 3, 1994

Good morning Chairman Carr and members of the subcommittee. It is a pleasure to appear before your panel once again to highlight some of the Safety Board's activities of the past year, and to discuss our proposed fiscal year 1995 budget request.

During calendar year 1993, the Safety Board adopted reports on 13 major aviation accidents, five major rail accidents, two major marine accidents, two major highway accidents, two major pipeline accidents. In addition, we completed work on two safety studies, one special investigation, and more than 2,000 general aviation accidents. Additional major accident reports have already been adopted in calendar year 1994, several safety studies are underway, and hundreds of regional accident investigations are being conducted. The time allocated for our hearing today prevents a detailed report on each of these activities, but there are some we would like to highlight.

Aviation Safety

Aviation's accident statistics dramatically improved in 1993. In the Safety Board's release of last year's preliminary accident data, we reported that the major U.S. scheduled airlines suffered no passenger fatalities in 1993 -- the lowest fatal accident rate since 1980. The data were equally encouraging for general aviation, which registered historic lows in terms of the number of accidents (2,022), fatal accidents (385), and fatalities (715).

Charter airlines experienced their fourth consecutive year without a fatal accident. With respect to scheduled commuter airlines, our statistics showed that the fatal accident rate dropped, while the number of fatalities increased from 21 in 1992 to 24 last year.

Despite this statistical improvement, much needs to be done as is evidenced by the fact that the Safety Board continues to discover new safety problems and many previously identified issues that remain inadequately addressed.

Commuter Airlines

Safety Board statistics demonstrate that the safety of commuter airlines has steadily improved over the past decade. Despite these improvements, we continue to find areas in commuter airline operations warranting attention.

At last year's hearing, we discussed the Safety Board's report on the commuter airline accident in Anniston, Alabama, and the accompanying safety recommendations we issued to the Federal Aviation Administration (FAA) regarding the experience and training of commuter air carrier pilots.

This issue resurfaced recently when the Safety Board found that the instructor-pilot and the airline management were causal in the accident involving a Beech 1900C during a night-time training flight near Block Island, Rhode Island, in which the instructor and two captain-trainees aboard were killed.

In another accident, the Safety Board determined that the probable cause of a GP Express commuter airliner accident was the deliberate disregard for Federal Aviation Regulations (FARs), company procedures, and the lack of prudent concern for safety by the two pilots in their decision to execute an aerobatics maneuver during a scheduled check ride flight. The failure of the company's management to instill professionalism in their pilots consistent with the highest levels of safety necessary for an airline operating in scheduled passenger safety also was cited by the Safety Board.

Two other fatal commuter airline accidents are currently under investigation.

On the evening of December 1, 1993, a Jetstream 31 aircraft being operated by Express II Airlines was approaching the Hibbing, Minnesota, airport on a flight from Minneapolis to Hibbing. The airplane was about three miles from the runway touchdown zone on a localizer back course approach when it crashed into a hill, killing all 18 persons on board. This was the worst accident in terms of loss of life on a scheduled commuter aircraft since the crash of an Atlantic Southeast Embraer 120 in Brunswick, Georgia, in 1991.

The weather at the time of the accident was 300 feet overcast, 3/4 mile visibility in freezing rain, snow, and light fog. The Safety Board's investigation of the accident is far from complete. However, I can share some information.

The Hibbing accident is the third accident that the Safety Board has investigated involving a Jetstream 31 airplane on approach in conditions conducive to airframe icing. In the previous two accidents, the evidence was conclusive that the pilot experienced a loss of longitudinal control, attributed from a combination of ice build up on the horizontal stabilizer leading edge, when the wing flaps are extended and the airplane is flown at an above normal approach speed. Following these two accidents, the FAA placed restrictions on the wing flap extension and the speed used with the flaps extended during approach in icing conditions.

These previous two accidents prompted immediate media speculation that the Hibbing accident was caused by the same phenomena. However, to date the Safety Board's investigation does not support the existence of the conditions necessary to attribute the accident to ice accretion. The reconstruction of air traffic control (ATC) radar data indicate that the crew was descending rapidly; however, there is no indication of a loss of control before the crash. While it is too soon to be conclusive, it appears that the descent could have been arrested had the crew been aware of imminent ground impact.

The most recent accident involved a scheduled commuter operator, Atlantic Coast Airlines doing business as United Express, on January 6, 1994, in Columbus, Ohio. The airplane was a newer and larger Jetstream model. Again, a landing approach was being attempted in icing conditions with low ceilings and restricted visibility. The flight was tracking both the glideslope and localizer until it was about

500 feet above the ground when the airplane's stall warning stickshaker activated and the airplane descended rapidly and crashed. The two pilots, a flight attendant, and two of the five passengers died. The other three passengers escaped from the airplane with minor injuries.

Unlike the aircraft involved in the other three Jetstream accidents, this airplane was equipped with a ground proximity warning system (GPWS) designed for commuter airplanes. However, the system was wired such that it would not sound during a stall warning activation. The Safety Board's investigation of the accident is continuing, and the scope of a commuter airline pilot training study is being expanded to include broader commuter airline industry issues.

Pegasus Launch

Nineteen ninety three marked the Safety Board's first investigation of a commercial space launch incident under a two-year old Memorandum of Agreement with the Department of Transportation. On February 9, a mission to place communications satellites in low earth orbit by Orbital Sciences Corporation was marked by a serious interruption in the launch sequence and associated procedural anomalies of potentially serious magnitude.

The potential problem arose when an abort command was issued by the National Aeronautics and Space Administration (NASA) during the final seconds of the launch countdown. However, the launch suddenly was reinstated 30 seconds later by the company's test conductor. The Pegasus expendable vehicle was fired uneventfully from a B-52 when it was about 80 miles from Cape Canaveral, Florida.

Although the actual launch was not hazardous, the Safety Board found that it occurred under unsafe conditions, including general communications confusion and a lack of clear lines of authority and responsibility in the mission control room. Channels of communication and standard intercom protocol in the mission control room were improperly planned. Most likely fatigue, plus other factors, adversely affected the performances of some critical personnel during the launch.

The lessons learned over the past few years concerning group interaction, the value of common procedures, fatigue and circadian rhythm awareness and human ergonomics, which are widely applied in the aviation community, are not apparently being used by commercial space operators or government launch ranges. Consequently, recommendations were issued to the parties involved in the incident to adopt these practices.

Greenwood, Indiana, Midair Collision

The inherent limitations of the concept known as "see-and-avoid" used by all general aviation pilots resulted in the 1992 mid-air collision of two planes southeast

of Indianapolis. Six persons were killed and two others seriously injured in the accident. When weather conditions permit, FARs require that vigilance be maintained by each person operating an aircraft so as to see and avoid other aircraft. Yet, the Safety Board found that many factors can reduce an individual's ability to exercise the required vigilance, including the age and the workload of the person designated to do the seeing, the size and color of the object to be seen, and weather conditions. The Safety Board, in adopting its report, issued several recommendations to the FAA urging improvements in the procedures involving uncontrolled airport departure and arrival rules.

747 Engine Separation

In adopting the report on a 1993 incident in which the No. 2 engine and pylon separated from a Japan Air Lines Boeing 747 in severe turbulence shortly after takeoff from Anchorage International Airport, the Safety Board determined that the event was caused by the severe turbulence and the presence of a fatigue crack in the pylon. The flightcrew was able to control the airplane and made an uneventful landing and no one on board the airplane or on the ground was injured. The fatigue crack was found to have reduced the strength of the pylon attaching the engine to the wing. As a result of the investigation, the Safety Board recommended modifications to the pylon structure.

China Eastern Airlines, MD-11

Completing the investigation into an accident that occurred over the Pacific Ocean involving a China Eastern Airlines MD-11, the Safety Board determined that the probable cause of the accident was the inadequate design of the flap/slat actuation handle that allowed it to become inadvertently dislodged. The reduced stability and light control force of the MD-11 led to several violent pitch oscillations. The MD-11 aircraft pitched violently and lost 5,000 feet of altitude after an inadvertent deployment of leading edge wing slats. The captain regained stabilized flight, declared an emergency because of passenger injuries, and diverted to the U.S. Air Force Base in Shemya, Alaska. Of the 255 people aboard, two passengers were fatally injured, and 149 passengers and seven crewmembers received various injuries.

Even before completing this investigation, the Safety Board issued recommendations that prompted the aircraft's manufacturer to make interim modifications to the system to prevent additional inadvertent deployments.

During the investigation, a separate issue came to light. While not a factor in the accident, we found that the fire-blocking material under the dress covers of the passenger seat cushions had deteriorated to an extent that the material no longer provided fire protection of the seat cushions. The Safety Board is concerned that this problem could exist on other airplanes, and we have urged revisions in the FAA's current burn tests.

Zwingle, Iowa, MU-2

This past November, the Safety Board determined that the April crash of a Mitsubishi MU-2 that killed all eight people aboard, including the Governor of South Dakota, was caused by the failure of a propeller hub due to fatigue cracking. The cause of the propeller hub arm fracture was a number of factors that reduced the fatigue resistance of the hub material, probably coupled with the unexpected exposure of the propeller to a vibratory mode during ground operations. The Safety Board determined that insufficient consideration was given to this vibratory mode during the airplane's certification process by the FAA. A series of recommendations were issued calling for safety inspections of hubs similar to the accident plane.

**Flightcrew-Involved Major Accident
Safety Study**

The Board recently completed a study of the 37 major U.S. air carrier accidents that occurred between 1978 and 1990 in which the actions or inactions of the flightcrew were cited as factors. The Safety Board examined characteristics of the operating environments and flightcrews. The errors identified in the accidents were evaluated in light of the contexts in which they occurred.

For example, of the accidents studied, half of the captains had been awake more than 12 hours prior to the accident, and half of the first officers had been awake more than 11 hours. Crewmembers who had been awake longer made more errors,

the Safety Board study found, specifically more procedural and tactical decision errors. Recommendations calling on the FAA to upgrade crewmembers' training, improve the awareness of the detrimental effects of fatigue, and enhance pre-takeoff and taxi checklist procedures, were subsequently issued.

On-Going Accident Investigations

FAA King Air near Front Royal, Virginia

On October 26, 1993, a Beech model 300 King Air, operated by the FAA's Flight Inspection Area Office in New Jersey, crashed near Front Royal, Virginia. Shortly before the accident the flightcrew had completed a flight check of the instrument landing system at Winchester, Virginia. The airplane was flying under visual flight rules and the flightcrew was in the process of obtaining an instrument flight rules clearance to their next destination of Newport News, Virginia. Witnesses reported that there were low clouds and fog obscuring the mountains, and that the airplane was flying near the base of the clouds at the time of the accident.

Although the investigation is still in progress, the performance of the flightcrew raised serious concerns. Within four weeks of the accident, we issued to the FAA one urgent and seven priority action safety recommendations. The Safety Board is concerned that the basic elements of flight operations and flight safety management

that the FAA expects of air carrier and commuter operations may not be present at FAA regional and headquarters units that conduct flight operations utilizing over 55 public-owned aircraft and a variety of leased assets.

American International Airways, Guantanamo Bay, Cuba

The crash of a DC-8 cargo jet owned by American International Airways (AIA) in Cuba last August is also under investigation. The Safety Board conducted a public hearing in Detroit, Michigan, on the accident at which the following issues were extensively explored: FAA surveillance of AIA; Department of Defense (DOD) contract operations; crew flight/duty times; special airport operations, and requirements for dispatch versus flight following procedures. More than a dozen witnesses with specialized knowledge in the areas under investigation testified and were questioned by a Board of Inquiry.

Westwind Corporate Jet, Santa Ana, California

Five persons were killed December 15, 1993, when a Westwind corporate jet crashed in Santa Ana, California while on approach to John Wayne Airport. The aircraft was on a visual approach for landing behind a B-757 when the accident occurred.

Since December 1992, there have been five accidents and incidents in which airplanes on landing approaches encountered the wake vortices of a preceding Boeing-

757. Our data show that in the past ten years, at least 51 accidents and incidents have occurred resulting from probable encounters with wake vortices. Because of the hazards revealed in the accidents and incidents, numerous safety recommendations were recently issued by the Safety Board calling on the FAA to reduce the likelihood of wake vortex encounters.

General Aviation

The Safety Board investigates over 2,000 general aviation accidents a year. The majority of these are handled by our regional offices, and often they generate safety recommendations.

For instance, in May 1993, a Piper PA-25-150 airplane crashed in Iowa after the right wing separated in flight. According to a witness, the airplane was applying weed spray over a field when the right wing buckled upward and the airplane rolled to the right. The airplane was destroyed in the crash and the pilot was fatally injured. The airplane had accumulated a total of 5,375 hours of service. The right and left wings were examined in our laboratory and the metallurgical analysis found fatigue cracks and corrosion in both wings.

Unfortunately, this is not a new problem. In fact, in May 1992, the Safety Board issued an urgent safety recommendation to the FAA concerning this very problem. It then took over a year for the FAA to issue a Notice of Proposed Rulemaking proposing to adopt an Airworthiness Directive (AD) calling for repetitive

inspections of Piper PA-25 airplanes. More time, perhaps several months, may pass before the AD becomes effective. Meanwhile, PA-25 airplanes may remain in service with undetected cracks and corrosion that could result in additional wing separations and fatalities. Consequently, on October 18, 1993, we urged the FAA to issue an emergency AD.

Surface Transportation

The Safety Board, through its Office of Surface Transportation Safety, investigates selected surface transportation accidents and incidents. It also performs safety studies

Railroad

Amtrak Accident near Mobile, Alabama

Amtrak's worst accident in its history, and the worst railroad accident ever investigated by the Safety Board, occurred September 22, 1993, when a barge struck the support structure of a CSX bridge north of Mobile, Alabama, derailling the train into the waters of the Bayou Canot. Five crewmembers and 42 passengers died in the accident, which was the subject of a three-day Safety Board public hearing in Mobile. Among the issues examined at our hearing were: Coast Guard oversight and

licensing and training of towboat crewmembers; marine operations in reduced visibility; rail passenger car crashworthiness and survival factors; protective devices to warn trains of damaged railroad bridges; and bridge protection. A final report on the accident is expected this year.

Collision of Burlington Northern and Union Pacific Freight Trains Kelso, Washington

The Safety Board also is investigating an accident that occurred November 11, 1993 when a southbound Burlington Northern train collided head-on with a northbound Union Pacific train near Kelso, Washington. All eight locomotives were destroyed and more than 24 freight cars derailed. Five crewmen were on board the two trains and all perished in the collision. Preliminary evidence indicates that the Burlington Northern train failed to stop, as signaled, and allow the Union Pacific train to cross over onto a set of tracks.

Positive Train Separation

Positive train separation, an item on the "Most Wanted" list of safety issues, has been a long-time Safety Board interest, which we believe should be a priority for the industry. Federal Railroad Administration (FRA) records indicate that from 1987

through 1991, 1,483 head-end, rear-end and side collisions have occurred. Moreover, several accident investigations completed last year attest to the safety benefits of positive train separation.

In the report of a 1993 train collision in Gary, Indiana, for instance, the Safety Board found that the accident could have been prevented had a positive train separation system been in place. Seven people were killed and 95 others injured in the sideswipe collision of two commuter trains. Although the Safety Board determined that an engineer failed to heed a stop signal, an operational positive train separation system would have overridden the engineer's failure.

The 1991 accident in Ledger, Montana, also contributes to the Safety Board's belief in positive train separation. In this accident, poor communication practices by a dispatcher and a train conductor, combined with inadequate management oversight and quality control, led to the fatal, head-on freight train collision. A series of safety recommendations covering dispatcher selection, training, staffing and quality control were issued. At the same time, the Safety Board found that the head-on collision would not have occurred were positive train separation in place and operational.

The Safety Board has consequently renewed its efforts, calling on the FRA, in conjunction with the Association of American Railroads and the Railway Progress Institute, to establish a firm timetable for development and implementation of such a system. Unfortunately, the responses thus far have not indicated a commitment to a firm schedule.

State Oversight of Rapid Rail

As a result of previous Safety Board investigations, recommendations were issued in 1991 calling on the states to establish safety oversight programs for their rapid rail transit systems. The goals of the recommendations were bolstered by the enactment of Federal legislation calling on the Federal Transit Administration (FTA) to issue such regulations.

Last year the Safety Board adopted the report of an accident on a Greater Cleveland Regional Transit Authority (GCRTA) accident in which a passenger train struck the rear of an empty passenger train. The Safety Board found that the striking train was either following the other train too closely, or the operator was inattentive or distracted. The Safety Board had previously investigated a similar accident in 1991 involving GCRTA, which resulted in the issuance of safety recommendations for state oversight.

An Advance Notice of Proposed Rulemaking (ANPRM) on this subject was issued in June 1992. Almost 1 1/2 years elapsed before a Notice of Proposed Rulemaking (NPRM) was issued in December 1993. The Safety Board recently provided extensive comments on this NPRM. The Board supports the rulemaking's intent, and we believe its implementation will satisfy the goal of our safety recommendations. However, the Safety Board has been concerned with the slow pace at which this rulemaking has proceeded and urges the FTA to issue a final rule as soon as possible.

Highway

In June 1993, the report on the Vernon, New Jersey, intercity bus accident was adopted. The charter bus ran out of control on a steep hill and crashed into two other cars before coming to a stop. Twelve of the 50 occupants of the bus were ejected, six of whom died. The bus driver's failure to adequately maintain the bus and his deliberate disregard of safety requirements by operating the bus with deficient brakes were determined as the probable causes of the accident. The Safety Board also found that the failure of the New York Department of Transportation to inspect the bus and ensure that its deficiencies were corrected also contributed to the accident. Previously identified gaps in the Federal Highway Administration oversight, which remained at the time of the accident, essentially allowed the bus company to operate without Federal oversight.

Bridge Safety

The Safety Board has long been concerned about bridge safety, and our investigations have disclosed a variety of issues, including the structural stability of bridge substructures, the adequacy of bridge design, and the adequacy of bridge inspection programs, and an assessment of bridge vulnerability to collapse from errant

marine and highway traffic. The safety of highway and railroad passengers often depend on bridge soundness, and damage to a bridge poses inordinate risks, as seen last fall in Bayou Canot in Alabama.

New Orleans, Louisiana Bridge Collapse

Another 1993 bridge collapse resulted in the death of one person and critical injuries to two others in New Orleans, Louisiana. In this accident, a towboat pushing an empty hopper barge hit a bridge, resulting in the collapse of a bent and 145 feet of the bridge deck, which fell about 47 feet into the New Orleans Inner Harbor Navigational Canal. Two cars fell onto the collapsed bridge deck. This bridge pier also was not designed to withstand significant lateral loads, and over time became vulnerable to marine traffic. A public hearing exploring bridge structural design and pier protection methods was convened as a result of this accident.

Grade Crossings

Last year, the Safety Board decided to change the way grade crossing accidents are investigated. A multi-modal team of investigators is now launched to grade crossing accidents. This enables the team to identify issues from a broader perspective, with both highway and railroad technical specialists dispatched to the accident scene. Highway investigators cover the vehicle, driver, and highway, while railroad operation and equipment features are addressed by rail investigators.

Fort Lauderdale, Florida, Grade Crossing Accident

This approach is already in operation. The first major multi-modal accident investigation in 1993 of this type began with the March 17, Fort Lauderdale, Florida, collision between Amtrak Train 91 and an Amerada Hess Gasoline Truck that killed six people and injured 19. The Safety Board recently adopted the report of this accident, finding that the inadequate traffic control precautions taken by the county engineer, project engineer, and contractor resulted in traffic congestion at the crossing. Further, the gasoline truck driver's decision to cross the railroad track, even though the warning system had been activated, was the probable cause.

Intercession City, Florida, Grade Crossing Accident

A second major multimodal launch was made to Intercession City, Florida, on November 30, 1993, to investigate a grade crossing collision between an Amtrak passenger train and a tractor lowboy-trailer carrying an electrical transformer. As a result of the collision, 64 train occupants and the truck driver were transported to five area hospitals; seven train occupants and the truck driver were admitted for treatment. The bottom of the truck's lowboy-trailer apparently became stuck on the tracks, and after becoming stuck, the grade crossing gates and lights activated. The Amtrak locomotive crashed into the side of the trailer at approximately 75 miles per hour.

The multi-modal grade crossing investigation approach will also compliment the safety study currently planned for initiation this summer. This study will focus on passive grade crossings and will examine issues related to sight distance and crossing geometry, nighttime visibility, crossing closures, private crossings, whistle effectiveness, and driver education. Although past accident investigations have recommended improvements at grade crossings, these accidents continue, resulting in more than 600 fatalities and 2,000 injuries annually. The study will examine the adequacy of the existing accident prevention system. This "failure mode" analysis should lead to new safety recommendations to reduce the number of grade crossing accidents. Additional countermeasures related to engineering improvements, enforcement of traffic laws at crossings, development of safety regulations and standards, and public education about crossing safety could reduce the number of grade crossing accidents. The safety study will explore issues related to passive crossings, adequate sight distance, and proper roadway alignment, and signage.

Marine

The Safety Board investigates all major marine accidents that occur on U.S. navigable waters, and marine investigators were launched to thirteen accidents and two major reports and one marine special investigation report were adopted last year.

Queen Elizabeth II

One of the major reports dealt with the grounding of the Queen Elizabeth II off the coast of Massachusetts in 1992. The Safety Board cited failure by the ship's pilot and master to exchange critical information as the probable cause of the accident. The grounding would probably not have occurred had a conference been held between the QE2's master and the state pilot, and subsequent safety recommendations were issued to the Coast Guard concerning bridge resource management training. Safety Board investigators also found that the ship's passengers had not received a comprehensive safety briefing, nor did they participate in an emergency drill. Related recommendations were issued to Cunard Lines Ltd., the operator of the QE2.

Foreign-Flag Cruise Ship Special Report

Less than one month after adopting the QE2 report, the Safety Board called on the International Maritime Organization (IMO) to continue to improve firefighting standards aboard foreign-flag cruise ships using U.S. ports and carrying mostly U.S. passengers.

In a special report, the Board found that both passengers and crews on passenger ships are exposed to an increased risk in fire emergencies due to the

absence of established international firefighting training standards. The Safety Board believes that to reduce that risk, crewmembers should be provided with, at the minimum, a basic level of emergency training necessary to assist passengers in an emergency. New fire safety recommendations were issued to the Coast Guard, the U.S. IMO representative.

Towboat Operations

The Safety Board's concern for the safety of towboat and tugboat operations continues to increase.

The Safety Board recently determined that the failure by the pilots and master of a containership to effectively use all available equipment and personnel to evaluate a developing situation led to the ship's collision with a tow consisting of one barge and a towboat in December 1992 in the Houston Channel, Galveston Bay, Texas. Contributing to the accident was the lack of a compass on the towboat involved in the accident, which would have helped it maintain its tow outside the navigation channel. As a result of this investigation, the Safety Board called on the Coast Guard to require that commercial tugs and towboats operating on navigable U.S. waters be equipped with a suitable compass, and that all licensed deck officers serving on board vessels equipped with Automatic Radar Plotting Aids (ARPA) be certified in its use.

Pipeline

Tremendous strides have been made since we last appeared before this panel regarding excess flow valves. After more than 20 years of Safety Board effort, DOT has indicated it will issue new rulemaking proposals to require the installation of excess flow valves in new and renewed, high pressure residential service lines. Safety Board staff has participated in the excess flow valve working groups, and we believe the prominent position the issue has had on our "Most Wanted" list played a role in developing an industry consensus that calls for DOT to act on this safety issue.

Brenham, Texas, Gas Explosion

The Pipeline Division also completed an investigation into a fatal liquid petroleum gas explosion that occurred in 1992 in Brenham, Texas. The gases were released from a salt dome storage cavern and the subsequent explosion damaged a three-square-mile area. Three people died from the explosion, and 21 others received hospital treatment.

This was the Safety Board's first investigation into an underground salt dome storage cavern, and several safety issues were identified which require attention. For example, Safety Board investigators found gaps in Federal and state regulations governing underground storage facilities for natural gas and highly volatile liquids.

Existing regulations primarily deal with environmental risks, and do not require an adequate level of safety for workers or the public. The Safety Board is aware that the Texas Railroad Commission intends to propose new safety rules in response to our investigation.

Colonial Pipeline, Reston, Virginia

The Safety Board investigation into the March 28, 1993, pipeline accident in Reston, Virginia, is continuing. The release of diesel fuel resulted from a rupture in a pipeline operated by Colonial Pipeline Company. Four hundred seven thousand gallons of product escaped into Sugarland Run, which empties into the Potomac River. Although a report has not been approved as of this date, the information gathered indicates the pipeline was damaged by construction equipment. The resultant damage weakened the structural integrity of the pipeline, enabling the rupture. Material gathered during the investigation has prompted a decision to review previous Colonial Pipeline and other liquid accidents.

Drug and Alcohol Use on the Nation's Highways

Advances were made in the Safety Board's work on eliminating the risks posed to the traveling public by drug and alcohol use. Several more states adopted Administrative License Revocation (ALR) laws in 1993. Many more states are making

their laws on underage drinking and driving more stringent and the Senate has acted on legislation embodying many of our recommendations in this area. We take this opportunity to acknowledge the work of the distinguished Ranking Minority Member on the companion House legislation dealing with this problem. After years of effort, moreover, final rules have been issued calling for drug and alcohol tests for transportation workers in safety sensitive positions. The Safety Board is confident that all of these activities will help protect the traveler from the impaired operator.

Fiscal Year 1995 Request

The Safety Board is requesting \$37,305,000 for fiscal year 1995, an amount that will support a staffing level of 343 Full-time equivalents (FTEs). The funding request represents less than a one percent increase over last year's enacted appropriations.

Our budget justification presents a summary of the proposed funding allocations, as well as projections on the request's anticipated impact on our workload. Rather than repeat that material, I would like to make some brief comments to summarize our funding situation.

The overwhelming bulk of the fiscal year 1995 request is dedicated to salaries of staff who investigate accidents. The Safety Board has always prided itself on fulfilling our transportation mandate with our small, efficient staff.

In order to assist this dedicated staff, we have employed a variety of means to stretch our own resources. For example, our investigation system allows for the full participation of parties to our investigations, thereby allowing the Safety Board to use the resources of others. The Safety Board maintains complete charge of each investigation, retains the sole responsibility for ultimately determining the pertinent facts, and for developing the material necessary for the determination of accident causation. The "party" system has unquestionably allowed the Safety Board to significantly leverage our personnel resources. This leveraging is precisely the type of innovation now being advanced in other Federal agencies.

Since we already have leveraged our resources, the staffing reduction contained in the budget request will admittedly place constraints on our operations. Despite the adverse affect it will have on many of our functions, we nonetheless pledge that our timely response to transportation accidents will continue unabated.

The Safety Board thanks the panel for its unwavering support, and on behalf of the other Board Members, we look forward to working with you to advance transportation safety.

COMPUTERIZED ACCIDENT SIMULATIONS

Mr. VOGT. Finally, at our hearing last year, interest was expressed in seeing some of the tools we use in our accident investigations, and one of these tools is our computerized accident simulations, which have been extremely helpful in making presentations to the board on some of our accidents. And we also have with us today a new electronic camera which we think is going to produce some excellent efficiencies and long-term cost savings.

So at this point I would like to ask Dr. Loeb, who is the head of our research and engineering office, to give you a brief demonstration of a couple of these things.

Mr. PRICE. That is a very good idea and we will do that before we proceed to the questions.

Let me excuse myself to go to the floor and vote. I will be right back. Meanwhile, if you will prepare the presentation, we would appreciate it.

[Brief Recess.]

COMPUTER PRESENTATION

Mr. PRICE. The Subcommittee will resume and we will continue with your presentation.

Mr. VOGT. Dr. Loeb will proceed.

Mr. PRICE. All right.

Mr. VOGT. Bernie.

Dr. LOEB. Okay, thank you.

Many tools are available to us for use in our accident investigations and I want to show this morning just a couple of them, one that we have been working with for a number of years and one that is very, very new.

AMERICAN AIRLINES FLIGHT 102

The first is our computerized presentations of reconstruction of crash dynamics which show us what happened in an accident sequence. I want to show a reconstruction of an aviation accident, a rail accident and a highway accident. The first accident that we are going to review is the American Airlines Flight 102 accident in which the DC-10 ran off the right side of Runway 17 left at Dallas-Fort Worth Airport last April 1993. At the time of the accident it was raining.

With the technologies available to us, especially some new technologies in weather calculations and depiction, the board was able to determine that weather was not, in fact, causal to the accident. Rather, the board determined that the captain, once on the runway, failed to compensate for crosswinds and, in essence, failed to make proper flight control inputs to control the airplane and keep it on the runway. The determination was facilitated through the reconstruction which was based on flight data recorder, cockpit voice recorder, and performance studies.

The first presentation we are going to see is from the point of view of a chase airplane that will be following the DC-10.

You will note that there are gauges on the right side on the bottom; they are from flight data recorder information. It is important to keep your focus right before the landing and after the landing

on the yoke and the rudder pedal, the two primary flight control devices of importance.

It is about a minute and a half before touchdown. This is real time, by the way. There will be some text from the cockpit voice recorder, as you see now, that is present in the upper left-hand corner of the screen.

There is conversation, you will note, about the crab angle and that indicates the winds that they are trying to compensate for. The airplane is about 200 feet off the ground now. As it gets lower, you will notice that there is more movement of the yoke and the rudder pedals. You will also note the captain takes over control of the airplane.

You will note activity initially, the airplane will be landed on the center line, initially heading straight down the runway, and then you will notice a relaxation on the flight controls and the airplane will depart to the right. There is one input that does arrest the departure momentarily and then it continues off.

This computer reconstruction enables us to assimilate large amounts of information normally presented either graphically or in tabular form, and to see it in a time sequence that your mind comprehend.

GARY, IN, RAILROAD ACCIDENT

Reconstructions, as I mentioned, are not done just in the aviation mode, but we do use them in the surface transportation area as well. Recently, we used it in investigating a collision between two northern Indiana commuter transportation district trains that occurred at Gary, Indiana, in January of 1993. In that accident, seven passengers died and 95 people sustained injuries.

While the Board determined that the accident was caused primarily by actions or inactions on the part of the crew members involved, the reconstruction will show very clearly, when we see it in a few minutes, that the dynamics of the collision itself, front left corner to front left corner, without adequate corner collision post to absorb the energy, resulted in substantial damage to the left front corners of each of the trains, and in fact reduced or eliminated the survival space for some passengers, resulting in their deaths.

This reconstruction was based on the facts in evidence that was collected at the scene and the dynamics that were provided by our rail division. The first view will be as seen by the westbound train.

We are following the westbound train. It proceeds past the signal which was a clear signal, enabling the train to go forward, moved through the Gary Gauntlet Bridge, and as you move on through, you will note that he now can perceive the eastbound train, which is now encroaching past the signal and on to the track. And you will note the left front to left front collision which was with considerable force and eliminated, as I said, some of the survivable space.

We will show another view of this from the eastbound train, the eastbound train as it passes the signal at which it had a stop indication. We can point out the signal, which is barely visible in the front. The train should have stopped at that signal, but did not. It proceeds past, and now, as it does, you can see the westbound train proceeding through the bridge and it is visible. And the collision.

We believe this reconstruction helped us to develop the recommendations that address the lack of the corner post collision post.

Mr. PRICE. How fast were those trains moving at the point of impact?

Dr. LOEB. The eastbound train was stopped or very close to stopped. The westbound train had been moving about 30 to 35 miles an hour across the bridge. Unfortunately, it did not go into emergency until after it had literally collided with the eastbound train and passed that train. So it was a severe collision.

However, we do believe, though, it is entirely feasible to provide collision posts and that is done in some trains. The importance of this is that a lot of the light commuter railcars are built in accordance with the same kinds of construction specifications as these trains. So we think it is a significant issue.

VERNON, NJ, CHARTER BUS ACCIDENT

The final reconstruction that we want to show was of a charter bus that overturned in July of 1992, on a very steep grade outside of Vernon, New Jersey. In the process, the bus went on to the wrong side of the road, on to the left side of the road, tried to correct, in the process lost control, struck a car, turned over and struck another car. In that accident, there were 12 passengers ejected from the bus and six of the passengers died.

Again, we will be viewing this first presentation from the standpoint of a viewer who is aft and to the left of the bus and traveling with the bus.

The bus, as I said, was on a fairly steep decent. The grade at this point was somewhere between five and seven or seven-and-a-half percent descending. You will note the bus first moves slightly over the center line, comes back, moves over again, this time much further, tries to correct, loses control, strikes the first car and rolls over. Notice the black lines and the braking and skid marks. These lines and markings allowed us to create this reconstruction and know that we got the bus in the right location.

This is a view from an individual who would be standing watching the bus come at them and move away from them.

The bus is coming, you can see the first car, strikes it, overturns. You cannot see it striking the last car.

I think you can see that these reconstructions provide us with an enormous capacity to absorb large amounts of data, time-sequenced, and understand what happens. Our performance engineers who work with this data day in and day out have the ability to look at tabulations and quickly understand them. but they cannot get this complete a view without these reconstructions.

Now, the other thing I would like to demonstrate is electronic digital photography.

Now, Jeremy has taken your picture and there it is on screen that rapidly. Now, what are the advantages of this technology?

First of all, you will notice that it is a quite good and faithful reproduction. It is available instantly, as you see. It also enables us to save money. There is no film, film processing or printing. What happens in the way we use this is that this digital data would go into a PC, just an ordinary PC; store it and/or print it. We can also

have our investigators on the scene—you can show a picture of the part—take a picture of a part, let's say at LaGuardia or Gary, Indiana. By using a PC with a modem, the investigator transmits it back to us here at headquarters, and we have it instantly. This meant that, in some cases, we do not need to send people to the scene, for example, metallurgists, until we get a look at a part and know whether we want to do that or not.

So there is some tremendous cost savings in this technology. That is what I wanted to present to you this morning.

Mr. VOGT. I might add, Mr. Price, in the Board's deliberations, this is enormously helpful to us, particularly the simulations, because our staff works for long periods of time to analyze, digest and report on accidents to us. And so to be able to assimilate all this body of information in a visual presentation, is extremely helpful.

AMERICAN AIRLINES FLIGHT 102

I was the Board Member who went to the Dallas accident, which you saw earlier, and it was very difficult anecdotally to try to put together what actually happened. But with the information from the flight data recorder—I mean that entire simulation was made from hard data that came out of the flight data recorder—it is much easier to grasp what was a difficult situation.

The flying pilot turned the plane over to the captain at about 50 feet off the ground, and he then landed it, and instead of continuing to fly the plane on the ground with a crosswind, we concluded that he tried to use his nosewheel steering device to stay on the runway and it was inadequate given the conditions that existed in the crosswind.

That is all very hard to put together in your mind, but it is very easy to understand when you can combine it with a graphic display. So we find this to be very helpful. We are anticipating that we will be able to get a cockpit view, the pilot's view of what goes on in the cockpit as well as these kinds of simulations. These are major advances, we think, in our technology, and our analytical capabilities.

Mr. PRICE. How long have you had this capability we see demonstrated today? Is that very new?

Mr. VOGT. I have seen it in the last year.

Dr. LOEB. We have had some capability for years now, but it was extremely crude in the beginning. We have been doing reconstructions for more than 10 years; very crude in the beginning, but improving as the power of the computers improves so rapidly and the graphic capabilities of them and the software development. All of it is combining to make improvements by leaps and bounds. So we are moving ahead. This is about a year and a year and a half now.

Mr. VOGT. And the capacity of the flight data recorders in aviation accidents to record more and more information that can then be translated into these kinds of presentations.

DALLAS-FORT WORTH AVIATION ACCIDENT

Mr. PRICE. I would like to ask you about your findings in the Dallas-Fort Worth accident because there was some dispute about the probable cause of that accident. And quite apart from the technical display we have had this morning, I wonder about your con-

clusions. I would like to give you a chance to elaborate on those because American Airlines disagreed with you and they attributed the cause of the incident to insufficient weather information provided to the crew by air traffic control as well as a rain-soaked runway that did not meet FAA criteria. Why did you disagree with the airline? On what was your disagreement based?

Mr. VOGT. Well, in part it had to do with an analysis of the friction components of the runway at the time, and I walked down that runway. It looked as if there had been hydroplaning and it shows how you can be wrong in early conclusions, because there were tracks on the runway that looked as if the aircraft had hydroplaned off. There is a heat cleaning effect on the runway that occurs from the friction when brakes are locked.

But that turned out not to be the case. We had our people on the scene that day. We went down, as a matter of fact, in the FAA airplane, which was the subject of discussion at our hearing last year, and we got there in a very timely manner. And our analysis of the runway surface of the runway and the amount of water on the runway, in my judgment and the judgment of the board, and we were unanimous, totally and completely discounted hydroplaning as an aspect of the aircraft.

Now, American Airlines took the position that there was improper or incomplete weather information and we found absolutely no evidence to support that. There was a lot of weather information. Indeed, the crew had requested a landing in an opposite direction and they were refused that. There was some discussion in the cockpit about taking it around and not bringing it in for a final approach and landing on this particular approach.

As the aircraft approached the runway, and you could see from the presentation, there was a large crab angle in the aircraft to account for a crosswind. This was not an overwhelming crosswind, it was a quartering crosswind, as I recall, of about 25 knots. There had been some thunderstorm activity around and a tremendous amount of water had fallen on the runway but was not falling at the time of the touchdown.

The flying pilot, who was the first officer in the right seat, decided to take the aircraft around, to waive off the approach, and the captain said, no, no, no, I will take it, and he took control of the airplane, as I recall, at about 50 feet of altitude, and, Mr. Wolf, it is a shame you were not here, at that point because you could see the aircraft which was crabbing then turn on to the center line and actually land on the center line of the runway. Now it landed about 3,000 feet down the runway, but this was—he still had 7,000 feet left, which is plenty of runway left to bring this aircraft to a stop.

So the touchdown, actually, was on the center line and was a very good landing. So at that point that aircraft should have stayed on the runway, and in our judgment had the pilot continued at this time—the captain, flying pilot—had he continued to use aerodynamic controls, that is his rudder, and you could see the rudder movements there, and as long as he had rudder input in there he remained on the center line.

In fact, as the aircraft started to leave the center line at one point he added another bit of left rudder and it corrected and then

he, for reasons we do not understand, abandoned using his flight controls and went to his nosewheel steering, which is a hand device down on the left side of the cockpit. And once he started doing that, that aircraft proceeded off the runway.

So we did not find anything to support American Airlines' contention, and we had very thorough discussions with them about this. In fact, in my judgment, it was not even close. The evidence was overwhelming in support of our conclusion.

DALLAS-FT. WORTH AVIATION ACCIDENT

Mr. PRICE. Is it possible to specify the ways in which this system you have demonstrated today increased your capacity to reach this kind of determination?

Mr. VOGT. I think so.

Mr. PRICE. How would this determination have been arrived at or made more difficult a couple of years ago?

Mr. VOGT. Well, I think, and this is probably a very good case, just speaking as a Board Member who was presented with the evidence and had initial involvement with it. There was a lot of talk on the CVR and if you read the transcript of the cockpit voice recorder, as I mentioned earlier, about whether to complete the landing, whether to take it in or not. There were thunderstorms around the area, and a good judgment might have been to take it around.

But when you get conversations like that and then at almost the last moment, 50 feet off the runway, one pilot takes the control of the aircraft away from the other, you know there is a crosswind, you know that the pilot who is flying the aircraft has decided not to land it, and the other, the captain in command takes the airplane away from him and says, no, I will put it on the runway. And you know there has been a lot of rain and there is a contention that there was a hydroplaning accident. To be able to see how the aircraft was aligned when the captain took control and made a perfect landing on the center line, and to graphically see the air speed indications at the time, and to know the configuration of the aircraft in terms of speed and attitude and so forth when it touched down, and then to analyze why it went off the runway, was much easier to do than when we just had the anecdotal information about these sequence of events.

I thought, from my point of view, seeing that aircraft on the center line, and as an aviator myself, to know that once it is on the center line at that air speed in that attitude, with the degree of crosswind we knew he had, there is really no reason why that airplane should ever leave the runway.

Mr. PRICE. Thank you.

Mr. Wolf.

ACCIDENT LITIGATION

Mr. WOLF. I thank you, Mr. Chairman. Welcome to the Committee. What happens in a case like that when there is litigation and the people involved are suing? Where does this fall out; the company says one thing, you say another?

Mr. VOGT. Well, by statute and by our regulation our probable cause determinations are not admissible in any court of law.

Mr. WOLF. They are not?

Mr. VOGT. That is correct.

Mr. WOLF. That is in the statute?

Mr. VOGT. Yes, sir.

Mr. WOLF. What was the reason for that?

Mr. VOGT. Well, our purpose is to determine cause in order to make recommendations to prevent recurrences. And I can tell you that if your mindset is not directly focused on that and you are thinking about the entirely different subject of liability, and I have been involved in that kind of litigation as a lawyer, it just does not work.

Mr. WOLF. I can see that.

Mr. VOGT. So we assiduously guard that right not to have our probable cause determinations involved in litigation.

Now, having said that, our factual reports are available and our investigators are available for deposition on their factual findings but not their opinions. And so in almost all cases our people are deposed, and those depositions can then be introduced as evidence in the liability trial case but not the opinion evidence.

COLONIAL PIPELINE ACCIDENT

Mr. WOLF. I did not know that was in the statute.

On the Colonial Pipeline spill, which I am sure you are up to speed on, what actually did result? The Safety Board's metallurgical report suggests mechanical damage. Is it NTSB's opinion that it was a third party? I have never seen the cause conclusively stated.

Mr. VOGT. Mr. Wolf, I just signed off on our findings yesterday and they're being revised and will be out probably tomorrow.

Mr. WOLF. Okay.

Mr. VOGT. The frustrating and confounding part of this investigation was that once we determined early on that there had been an external cause of the scratch which subsequently ruptured, trying to determine when that happened and how it might have happened and by whom became, in the final analysis, something that we could not do.

Just to briefly take you through our deliberations on Colonial, our metallurgical analysis was done fairly early on. The accident occurred on March 28, and so we had that pipe in our labs shortly thereafter. Our analysis showed that some external impact had caused this scratch which then failed.

The problem was that in normal circumstances you can take that information and company records of the numbers of times that a line has been pressurized, and we know that is all hard data, and you can calculate, given the strength of the pipe and the nature of the scratch, when it would fail.

In this case, the problem was that there was also a dent associated with this striation, and the dent precluded us from using the formulas.

Since the calculations could not be performed, we attempted to determine whether the scrape occurred at the time of installation or at another time.

So we went to aerial records. The company is required every two weeks to have an aerial inspection of its pipelines and to maintain records on the inspections. We reviewed those records.

Also, we examined the one-call records, which incidentally the Safety Board was instrumental in bringing about. We asked Fairfax County to provide us with all of the excavation permits that might have impacted this site, and they came to us over a period of time and we received the last of those in October.

We looked into over 200 reports of excavations in the vicinity of the right-of-way in great detail. In addition, we could not find any evidence that would lead us to draw a conclusion about how the scrape happened. RSPA had directed the Colonial Pipeline company to run some internal tests with so-called "smart pigs" in September and October following the accident.

And I don't understand how totally these are done, there is a so-called "magnaflux testing device" which uses magnetic fields to determine whether or not there are any weak spots in the pipe. They have what they call a feeler system which had been used on the pipe back in 1989 and the crack was undetected. There is one other inspection device used called a distortion imaging which is supposed to detect dents. The results of all these tests were available in November. They showed 128 flaws in 45 miles of pipeline. The company dug up each of those flaws visually inspected them, and attached over 11 different structural support members to those portions. Yet, nothing in all that information told us when or how the accident happened.

COLONIAL PIPELINE ACCIDENT

Mr. WOLF. You looked at the pipe that came out and some of the other pipe that came out?

Mr. VOGT. Yes.

But, again, focusing on the leak that we were addressing, none of this told us anything more than we already knew. And so in November we decided to prepare our final factual report, which was transmitted to the parties in December. I believe Fairfax County sent its response back to us on the 24th of January. Nonetheless, it was clear by November and December that we were not going to be able to draw conclusions and make any recommendations in addition to those which we have already made on pipelines in the past. I have 9 printout of those recommendations with me today. I believe there are over 50.

Mr. WOLF. This is only Colonial or just—

Mr. VOGT. No, in general over the years. And we have been looking at them for 20 plus years.

Mr. WOLF. This is another question I wanted to ask, whether any recommendations come out of that, but apparently not.

Mr. VOGT. Well, we are not going to make recommendations on the basis of this investigation, but we are conducting a much broader based industry-wide special investigation which will include all pipelines, and we are in the process now of analyzing over 400 accident reports maintained by RSPA. There are some errors that need to be corrected in the data and we are in the process of doing that. We are going to run some statistical analysis.

In light of our past history of investigating pipeline accidents similar to this, this particular accident and what we find out from the analysis of these 400 RSPA reports, plus a survey of the industry we are contemplating plus additional data, we hope to be able

to come out in the fall of next year with a report which will propose some recommendations.

Now, for example, we know that there was an internal examination by a so-called "feeler pig" on the accident pipeline that failed to detect the problem. One of the things we want to determine is how effective are the current internal inspections? How good are the equipment techniques being used? Some new techniques are in use in England and we want to find out about their effectiveness.

It is frustrating to have an accident like this and not be able to come up with new recommendations.

Mr. WOLF. Particularly since you were so close to this accident, I don't want to say this was an opportunity, but since you are located here and I know your people spent a lot of time out there, this represented a chance to learn some things.

Mr. VOGT. It was very disappointing to go through all the procedures we normally go through and additional ones as well, and not come up with the information we needed.

Mr. WOLF. What did this investigating cost?

Mr. VOGT. I don't know, Congressman, what it cost us, in the sense that specifically on this accident.

Mr. WOLF. You had a lot of people involved, which I appreciated. It seemed to me that no one could be critical that you were not giving this adequate time.

Mr. VOGT. We gave it our very best shot.

ACCIDENT INVESTIGATION REIMBURSEMENT

Mr. WOLF. Do you have the ability to go after anyone for the reimbursement?

Mr. VOGT. No, sir, but we are certainly open to suggestions.

One of the problems we had on this, quite frankly, and it has to do with the broader subject of this hearing, is our resources. We only have three petroleum engineers in the pipeline division, and until—

Mr. WOLF. How many miles of pipeline are there in the country?

Mr. VOGT. I don't know. I don't know. I am sure there are well over a million miles of pipeline in the country.

But we were, at the same time, involved in the largest pipeline accident, I think in history, which was the Brenham, Texas explosion which registered, 4.5 on the Richter scale. There were a number of fatalities in this accident, which the board reviewed in September. And so the manpower we were able to put on the record evaluation of this, we were taking people off a lot of other projects in order to give this adequate attention. So in a cost sense, in terms of our staff, it was a major commitment on our part at a time when we were very pressed in this area.

Mr. WOLF. Has there ever been any consideration given to asking for legislation to have the ability to go after the company involved?

Mr. VOGT. Our legislation is pretty specific that that is not our role. We do make recommendations to the regulatory agencies upon which they often take action.

Mr. WOLF. They have the authority to do that?

Mr. VOGT. I am not sure what RSPA's authority is, but if anybody has the authority, that is where it lies, in the regulatory agencies that have jurisdiction over the pipeline.

COLONIAL PIPELINE ACCIDENT

Mr. WOLF. If you can send a copy, I guess you have pretty much told us what you are going to say tomorrow. There is still a lot of interest in this, and I am curious, how do you think the company has done on the cleanup; do you have any feeling?

Mr. VOGT. I don't. We had two Colonial accidents, one down in the Carolinas a year before that we were also looking into. But I think in the past, it is my recollection that the company has had a good record. We are not aware of—

Mr. WOLF. Okay, we will take a look at that. I guess I would like to see, if you can be sure Fairfax County gets a copy, Supervisors Bob Hicks and Tom Davis have been particularly interested in it.

You felt the county cooperated and gave you all the—

Mr. VOGT. Yes, they cooperated.

Mr. WOLF. I was hoping you would have been able to learn a lot from it, but apparently not, and I have no criticism of you all, you spent a lot of time and your people were very, very cooperative.

Mr. VOGT. Well, I think in that regard it has been the catalyst for something we think is going to be very productive in this broader study.

DRUGS AND ALCOHOL

Mr. WOLF. In your testimony, with regard to the drug and alcohol use on the Nation's highways, the high priority, the ALR laws, are on your most wanted list.

As you know, the High Risk Drivers Act, which was prompted by the board, passed the Senate by voice vote. I introduced the bill in over here and Congressman Rahall has promised a hearing in March. I assume you all would testify.

Mr. VOGT. We would certainly be delighted to.

ADMINISTRATIVE LICENSE REVOCATION

Mr. WOLF. Some of the safety groups supporting the legislation are urging an amendment be offered to give states an incentive to pass ALR laws for underage drivers, and under the proposed amendment any underage driver caught drinking with a BAC exceeding .02 would automatically be subject to administrative license revocation.

That means the police officer could take the license on the spot. What are your feelings about that?

Mr. VOGT. We have been very supportive of administrative license revocation, and 34 States and the District of Columbia now have it. Last year, Texas and Idaho passed ALR statutes. We appear at State legislatures to testify and testified, I believe, in the Senate.

Mr. WOLF. What about Virginia?

Mr. VOGT. Virginia?

Mr. SWEEDLER. We testified yesterday on the Senate side and on the House side, too.

Mr. WOLF. Maybe you could give us a list of the States that have implemented ALR so that we can share it with the Public Works Committee before markup in order to raise their comfort level.

Mr. VOGT. Let me say we will do anything that will be helpful in that regard. We will brief anybody you wish and provide any kind of information. We feel very strongly that this is important.

Mr. WOLF. Well, if you will get this from the States, we will do this, and I assume the Committee would want you as a witness.

Mr. VOGT. We will volunteer.

Mr. WOLF. We will let them know. Mr. Rahall seems very, very supportive, and I would think it will be a noncontroversial bill. They didn't have a vote in the Senate. Maybe we could bring it up under suspension even.

Mr. VOGT. Let me say this on behalf of the Board, and I mentioned this in my opening remarks, that we very much appreciate your sponsorship of that legislation. We think that it is extremely important and we know that it saves lives. We have done a lot of work on it.

Mr. Sweedler here, on my left, has been in the forefront of this effort across the country, and it is a very high priority for us and we think it is extremely important legislation and we really think it is marvelous that you are the author of it.

Mr. WOLF. Well, thank you.

I think the interest goes up and down, unfortunately. And I think, this is a prediction that I want to be wrong on, I think we will deal with it again in a couple of months during graduation and prom season.

So those times come and go. I am hoping we can have something done before that. So if you can initially get us the ALR list, and then if there is anything else you think of, maybe we can bombard the committee with four or five letters between now and then so they get sensitized to it, and maybe it would be helpful to have your people go by and sit down with their staff before the hearing is actually scheduled.

We are looking toward the end of March. We have a date; the 24th.

Mr. VOGT. We will be happy to do all of that, and by the end of the day today we will bombard you with a lot of information.

Mr. WOLF. Okay, fine.

[The information follows:]

The information below was furnished to Congressman Frank Wolf on March 3, 1994.

[Since this information was provided, both the House and Senate in the Commonwealth of Virginia have passed an omnibus drunk driving bill containing ALR and other provisions, and the legislation awaits the Governor's signature.]

ADMINISTRATIVE LICENSE REVOCATION LAW STATUS

ENACTED (35)

Alaska	Mississippi
Arizona	Missouri
California	Nebraska
Colorado	Nevada
Connecticut	New Hampshire
Delaware	New Mexico
District of Columbia	North Carolina
Florida	North Dakota
Hawaii	Ohio
Idaho	Oklahoma
Illinois	Oregon
Indiana	Texas
Iowa	Utah
Kansas	Vermont
Louisiana	West Virginia
Maine	Wisconsin
Maryland	Wyoming
Minnesota	

NOT ENACTED (16)

Alabama	New York
Arkansas	Pennsylvania
Georgia	Rhode Island
Kentucky	South Carolina
Massachusetts	South Dakota
Michigan	Tennessee
Montana	Virginia
New Jersey	Washington

* As of March, 1994

STATES WITH LOWER BAC LEVELS FOR
YOUTHFUL DWI OFFENDERS
(October 1993)

STATE	AGE LEVEL	BAC LEVEL	SANCTIONS			
			LICENSING	FINE	JAIL	COMMUNITY SERVICE
ARIZONA	<21	0.00		X	X	
ARKANSAS	<21	0.02	X	X		X
CALIFORNIA	<21	0.01	X			
	<18	0.05				X
DIST. OF COLUMBIA	<21	0.00	X	X	X	
GEORGIA	<18	0.06	X	X	X	
MAINE	<21	0.02	X			
MARYLAND	<21	0.02	X	X		
MINNESOTA	<21	0.00	X	X	X	
NEBRASKA	<21	0.02	X	X		
NEW HAMPSHIRE	<21	0.04	X			
NEW JERSEY	<21	0.01	X			X
NEW MEXICO	<21	0.02	X			
NORTH CAROLINA	<18	0.00	X			
OHIO	<18	0.02	X			
OREGON	<21	0.00	X			
RHODE ISLAND	<21	0.04	X	X		X
TENNESSEE	<21	0.02	X	X		X
TEXAS	<21	0.07	X			
UTAH	<21	0.00	X			
VERMONT	<18	0.02	X			
WISCONSIN	<18	0.00	X			

AIR BAGS AND CHILD RESTRAINTS

Mr. WOLF. Babies and air bags. Is the Safety Board looking into this issue?

Mr. VOGT. I have just read about it in the media and I will have to turn to the staff here to see if anybody has more information.

Mr. JOHNSON. Mr. Wolf, we have no data about any deaths or injuries to babies involved with air bags.

Mr. VOGT. Excuse me, Ralph Johnson is our Deputy Director of Surface Transportation Safety.

Mr. JOHNSON. However, we are about to embark on a special study involving children under the age of 11 and we are going to look at all aspects of restraint systems. And during that study we will certainly look into this issue.

Mr. WOLF. You have no record of any—

Mr. JOHNSON. We have not investigated any.

Mr. WOLF. I see. You know about it?

Mr. JOHNSON. We are certainly aware of the problem.

Mr. WOLF. I see. So you will be doing a study and that will be in cooperation with the Secretary?

I asked him the same question and he said they were planning on doing certain things to sensitize the public, because now you almost cannot buy a new car without air bags. And he made the comment that he puts his youngsters in the back seat now. And there are a lot of people that I think now have an air bag car and are putting children in the front seat, unaware of the danger.

Mr. JOHNSON. Right, and we are certainly going to look into that in our study.

BELTWAY SAFETY

Mr. WOLF. Okay. Just a few more questions.

Last year, you indicated that in the accidents involving trucks, which you had investigated, 50 percent had faulty brakes. Do you have any feelings or comments you want to make about the recommendations from the recent Beltway meetings held by FHWA?

Mr. VOGT. Well, we participated in beltway meetings, and I think there were a large number of recommendations that came out of them. They were not our own recommendations, but rather recommendations resulting from the meetings.

Ralph, perhaps you could elaborate.

Mr. JOHNSON. In the recent years, we have conducted a special study on commercial vehicles. We have done several major accidents, including the Vernon accident, which we saw the reconstruction earlier which was a bus that had deficient brakes. We have looked into the role of the Office of Motor Carriers, and we are continuing to look into this problem, which we think is quite substantial.

Mr. WOLF. Now, we asked the Secretary and Mr. Slater, the Federal Highway Administrator last year, when all this was taking place—again, you act when it seems there is a critical problem. About several years ago, under the Bush administration, we held a Beltway conference. We did a lot of things, and then the interest kind of waned. Those recent accidents happened and we pulled a group together again in August.

Tom Farley, who is now the regional administrator for VDOT, is running it and they have come up with 60 some recommendations. Some have been implemented, such as banning trucks in the left-hand lane.

Through the committee, we put some language in asking the Federal Highway Administration to do some activated ramp signs so when trucks coming off, particularly at 95 and the beltway, would be warned of excessive speed there will be a flashing signal telling them with regard to what the speed should be based on that.

Did Beltway group talk to you? Were you involved in that?

Mr. SWEEDLER. Yes. In fact, our investigator served on a number of the subcommittees. So we were intimately involved in helping design and work up those recommendations.

Mr. WOLF. So is anybody with your group still active? They are going to come back again this summer and they are still looking at everything.

Mr. SWEEDLER. Yes.

Mr. WOLF. Good. Because I think they could use your expertise and when we get an accident on our beltway or the Baltimore beltway, it ties up the whole region.

RADAR DETECTORS

Which leads to another question. Last year I advocated, and it was somewhat controversial, although I do appreciate the Secretary moving ahead, the banning of radar detectors in trucks. However, there is no enforcement mechanism with it. So if you get stopped, I don't know, what do they do, slap your hands? They do not give a ticket because it is not a violation.

If you are in the State of Tennessee and you are stopped and you have a radar detector, so what? So now that we have done this and banned it—and I appreciate the Secretary's action. But where do we go from here now?

Mr. VOGT. I don't know that we have ever considered that issue.

Mr. WOLF. Well, I think somebody should. There were hearings and different safety groups came in and I do want to commend them. I want the record to show that Secretary Peña acted, because a lot of other people have ducked the issue, although I think the American Trucking Associations supported it. Now that we have the ban, what do we do to enforce the ban? If you could just look at that.

I think all the studies and most people acknowledge that there was something wrong with a truck, particularly one carrying flammable material, having a radar detector moving and 70 miles down the beltway. So now I just want to know what is the next step. So if you could look into that.

[The information follows:]

The enforcement of the radar detector ban rests with local and state police, as well as with the Federal Highway Administration field staff. The ultimate success of the ban will be determined by the stringency of the enforcement effort undertaken by these officials.

TRUCK DRIVER FATIGUE

Mr. WOLF. I have two more questions before submitting the rest of the questions for the record. Driver fatigue.

Mr. VOGT. Well, that is a major issue with us, not only driver fatigue, but fatigue in all modes of transportation.

Mr. WOLF. I know in 1989 you said one-third of the drivers of truck-related accidents—

Mr. VOGT. Right. We are actually embarked upon a study on fatigue and, Ralph, maybe you can elaborate or Bernie, Bernie Loeb is the Director of our Office of Research and Engineering.

Mr. LOEB. We have been involved in the planning, development and carrying out of a study that followed up the earlier heavy truck study in which we determined that about one-third of the driver's fatigue was involved in the accidents. We have been, as I said, involved in a follow-up to that study to try to determine the factors that are associated with fatigue. We have investigated more than 100 accidents involving heavy trucks.

We are now in the process of analyzing the data. We hope to have a report to the Board sometime at the end of the summer and we hope the outcome is that we will learn something about the kinds of things that are associated with it; the type of operation, trucking operation; shift schedules, and that sort of thing.

Mr. WOLF. Like the size of the company and independent operators?

Mr. LOEB. Independents versus the large companies, short haul versus long haul, how they pay, those kinds of things.

NTSB-FAA RELATIONSHIP

Mr. WOLF. That will be very, very helpful. Great.

The other question I wanted to ask is how is the cooperation by the FAA? Is it good? Of course, they have been leaderless for so long, and now they have a leader. It is the one agency I think that is basically out of control. I don't think most Secretaries have had any control.

The committee does not understand a lot of the technical aspects. I am not a pilot. Fortunately, the Chairman, Mr. Carr is, and probably has a better handle than most Members. They dazzle you with the data. The AAS, the delays. There have been billions of dollars.

Most administrators come and then they go, and when they are there, they are gone because they are traveling and they are getting checked out on helicopters and planes. That is why I think the Secretary is probably on to a good idea to turn FAA into a corporation, and I just wonder if you have had better success than most other people with regard to cooperation from the FAA with regard to cooperation?

Mr. VOGT. We measure our success in terms of our acceptance of our work product, which are our recommendations. And the rate of acceptance and how timely the agencies react. They have 90 days by law to react. And I like to characterize our relationship with the FAA as one of constructive tension. We meet with them a lot. We are at arm's length with them. But we think it is very important that we have an ongoing dialogue.

And in the context in which we judge modal administration, on all points the FAA is the best, and we have just done a chart, as a matter of fact, to show from 1989 through 1993, and in 1993, for example, we had 124 recommendations to the FAA and their average response time to us was 68 days, which is the best of any Administration. And they have accepted over 90 percent of our recommendations.

Mr. WOLF. That is good.

Mr. VOGT. Now, in the past, last year for example, it was 74 percent; year before it was 89. On our urgent recommendations, they have normally been in excess of 91 percent acceptance. So we find that they are very responsive to our recommendations.

Mr. WOLF. That is good. I guess it does not matter if they do it with a smile.

Mr. VOGT. We do not really care.

Mr. WOLF. You know, criticism does not really make me happy, but a lot of times, you know, when I know I am wrong I just say I am wrong. And whether they are happy or not, that is very good, and I think the record should show they have been cooperative.

Mr. VOGT. Well, they have been and——

Mr. WOLF. I don't think the committee has had that success record with them. I know the average Secretary has not, so you are in a good position.

Mr. VOGT. Well, I think this speaks well of the staff level communication and the professionals working together and, of course, we are not running any popularity contests here.

REINVENTING GOVERNMENT—STAFF REDUCTIONS

Mr. WOLF. That is true. They do not determine your pay.

The last thing, and it is not a question, is to sensitize you that as you go through this so-called "reinventing government," that I think the intention behind it is well-meaning, but I see it targeting so many that have worked in the government for a number of years. I see it targeting midlevel, and I think what they really mean is middle age. I sense there are some middle-aged people sitting in front of me.

That is really where it is, the midlevel people, because of a lot of different activities over the years of bumping up and different things, that happens to be where the group is. And I think there is a targeting there. That is where some of the salaries are. And I sense the morale in the Federal Government is not really high now.

I don't represent as many Federal employees as I used to, because my district now goes from my house out to West Virginia, but they are not a happy lot. And with the Clinton health care plan, which wipes out the Federal employees health benefit plans and some of the others, this, I think, is particularly frightening.

When a person gets to be about 43, 45, 51, this is a frightening aspect, are they going to lose their job or not? So as you are going through these things, I think you should be sensitive. Middle level, mid management is not always bad. It is not always where the problem is. In fact, many times you will find they will be your technical people. And how you define that term—they are even defining scientists in that mid level. And, of course, I commented the other

day the woman who stopped thalidomide from coming into the country at the Food and Drug Administration was a mid level employee. You have a lot of scientific type people at NTSB, and I think it is something you should be very, very sensitive to as you are faced with this.

I thank the Chairman for the extra time and I thank you for your testimony.

Mr. VOGT. Thank you, Mr. Wolf. I want to say these people at the table look much older than they really are.

Mr. WOLF. Well, some of them, let me say they are closer to the end than they are to the beginning. I am 55; my dad died at 67. If I live to be as old as my dad, I have lived better than 80 percent of my life.

If this were a football game, I would be in the fourth quarter. I have been at football games where at fourth quarter I begin to leave with the crowd. The mid-life crisis, mid life, is about 40 on, so most of those at the table, and up here too, are closer to the end than they are to the beginning.

Mr. VOGT. I can certainly sympathize with what you are saying and I am now totally depressed.

FRONT ROYAL, VIRGINIA, AVIATION ACCIDENT

Mr. WOLF. In your testimony, you indicated you have serious concerns about the performance of the flight crew in this October 1993 accident. I realize the investigation is still under way, but what preliminary recommendations have you made to FAA? What has been FAA's response?

[The information follows:]

On November 24, 1993, the National Transportation Safety Board issued the following safety recommendations to the Federal Aviation Administration.

Require all Office of Aviation System Standards flight operations to file flight plans for all flights and to activate Instrument Flight Rules flight plans before takeoff to the maximum extent possible. (Class I, Urgent Action) (A-93-161)

Direct the Office of Aviation System Standards to evaluate the use of a Flight Dispatch program to assist in the management of FAA flight operations. (Class II, Priority Action) (A-93-162)

Institute Cockpit Resource Management Training, as outlined in FAA Advisory Circular 120-151 at each Office of Aviation System Standards flight operations unit. (Class II, Priority Action) (A-93-163)

Incorporate Aeronautical Decision Making techniques and skills as presented in FAA Advisory Circular 60-22 into the Office of Aviation System Standards aircrew training program. (Class II, Priority Action) (A-93-164)

Direct the Office of Aviation System Standards to evaluate the recommendations in the 1989 System Safety Survey relating to the second-in-command responsibilities and flying proficiency and to establish duties as appropriate. (Class II, Priority Action) (A-93-165)

Direct the Office of Aviation System Standards to implement an appropriate management/supervisor structure to ensure that a method of resolving conflicts, grievances, and incident reporting exists at the appropriate management level in each Flight Inspection Area Office. (Class II, Priority Action) (A-93-166)

Direct the Office of Aviation System Standards to elevate the Flight Safety Program requirements and the Senior Flight Safety Officer (SFSO) position within the organization to receive the level of attention presented in the responsibilities stated in the Flight Inspection Operations Manual and FAA Order 4040.9D, i.e., direct coordination between the SFSO and the Director of the Office of Aviation System Standards (as identified in the 1989 System Safety Survey). (Class II, Priority Action) (A-93-167)

Direct the Office of Aviation Standards and Flight Standards Service (or the Associate Administrator for Aviation Standards and the Associate Administrator for Regulation and Certification) to negotiate and implement, by an established date, a surveillance system for FAA flight operations that is at least equal to that of the air carrier industry as previously agreed to in 1990. (Class II, Priority Action) (A-93-168)

The Federal Aviation Administration (FAA) responded to the above safety recommendations on January 31, 1994. Although the Safety Board has not formally classified the status of the response, overall the FAA response agrees with virtually all of the recommendations, including the urgent recommendation to require IFR flight plans for FAA flight operations. An urgent revision to the flight operations manuals was issued by the FAA on November 24, 1993, to require the filing of IFR flight plans.

BOGUS PARTS

Mr. WOLF. The DOT Inspector General has done a great deal of work in the area of bogus parts. Has the Safety Board conducted any investigations of aviation accidents where it was determined that suspected unapproved parts (SUPs) or bogus parts were involved?

[The information follows:]

The National Transportation Safety Board has not identified the use of an unapproved part or counterfeit (bogus) part as a cause in any major air carrier accident. The Safety Board has cited the use of unapproved parts as causal in ten general aviation accidents since 1984. Typically, this involves the use of automotive parts or hardware available from a local hardware store substituted for a more expensive approved aircraft part. The cause of these accidents is attributed to improper maintenance.

Mr. PRICE. We will now turn to Mr. Coleman to cheer us up.

INTERNATIONAL HIGHWAY SIGNING

Mr. COLEMAN. That is right, there is always tomorrow.

Thank you, Mr. Chairman.

Last year, I remember asking a question about international signing and some of the problems we anticipated with NAFTA and other matters. It is one of the most frustrating things anyone finds while driving a vehicle. And imagine driving a truck at high speeds, or similar speeds, and not being warned sufficiently in advance of some new change, and particularly if it is in a language that is unfamiliar with some drivers, and that is unfortunate, but that is a reality.

I guess unlike the aviation industry where you have a standard language that is demanded, we do not for driving vehicles. I continue to have great concerns about the safety responsibility function of those drivers and the fact that we do not have anybody checking them, at least not from our standpoint, the Federal level. Evidently, we have made a policy decision as a Nation that we do not want to invest the kind of funds necessary to do the checks. The ICC doesn't do it, we do not have anyone else doing it, other than local governments. I call it an unfunded Federal mandate.

I want to talk about that as an issue. I wonder about the signage part of it; whether or not you had conducted any special efforts or done anything with respect to those issues, particularly from traffic drivers from non-English speaking countries?

Mr. VOGT. No, sir, we have not. The starting point for our activities is most often an accident or a series of accidents that cause us to do a special study, and I hope that maybe we will not ever have to encounter that. But if we do, it would emanate from an accident in which that was a factor.

Mr. COLEMAN. I know about the international sign issue a little bit, I know you do, and probably much involved with it, or at least involved with it to some extent, and it seems to me maybe that is an area we should be preparing for to some extent, to see to it we take into account some kind of international signing standard for vehicular traffic.

Mr. VOGT. I believe that is the case in Europe; that they have a universal signage standard there.

Mr. COLEMAN. Yes. Well, Mexico uses it as well, to some extent. But once again, I find it a very frustrating thing to travel in Virginia, or particularly in the District of Columbia, and everybody's excuse here, by the way, about poor signing, is they have a lot of tourists and tourists do not want to drive.

To be honest, I find that excuse totally lame and frustrating when you are driving in the right lane and you are suddenly confronted with a you-have-to-turn-right sign. You did not want to do that but you did not know that, and you have been given now about 20 feet to either crash into the left lane or turn right.

And I am just talking about several points I can show you around the District and a few in Virginia, I am sure, but my point is simply this: I worry a lot more about the signage part of it than maybe some others do. I have been fairly astounded, and maybe it is just true in this part of the country because it is an older part of the country—but we do not seem to plan ahead as well, I don't think, as in some of the wide open spaces of west Texas where you have a lot of time to make a mistake, which oftentimes happens there as well. Not saying we are above the mistake happening, but at least there is a lot more time usually given to making important decisions about where you are going to drive.

I worry more about that in terms of trucks, particularly because of the issue of NAFTA and because a lot of us, in my part of the country, anticipate more and more commercial traffic. So I would hope that if within your board you feel that something like that would be helpful, you would ask us to help us fund those kinds of studies or preparation that you feel is necessary. I hope you will contact us because I think this committee would be sympathetic to trying to deal with that issue.

Mr. VOGT. I expect that will be very timely as NAFTA in particular takes effect.

RAILROAD SAFETY

Mr. COLEMAN. Let me ask you some questions about rail safety. On the rail issue it the board called the National Railroad Administration or is it FRA.

Mr. VOGT. Federal Railroad Administration, FRA.

Mr. COLEMAN. FRA, Federal Railroad Administration. You know, I have always been fairly amazed about the United States and the fact we do not really spend the kind of time or dollars on the technology for rail that I think we should. And I can understand why companies, the private sector, has felt they cannot. It has been an economic issue. We have seen passenger rail service with the jaded history certainly in that regard, but I think more and more commercial rail will be utilized, not less.

Quite honestly, just again from a perspective that is maybe different than other folks, but I think that those will become issues and I am worried, for example, about the rail separation issue, train separation issue, and wonder if the kind of technology that is needed—I understand it has been called "cost prohibitive" I am wondering, your opinion on that might reflect some need for the Federal Government to play a role.

POSITIVE TRAIN SEPARATION

Mr. COLEMAN. You know, we have done that in many instances where we do not lead the way because of our intelligence, but we will lead the way with some dollars, some help in new technologies. We have done it in the national defense arena as a government historically. I don't know why it is we cannot do it with other issues. It seems fairly important to me that we might be able to help in getting the technology aboard that can prevent the kind of accidents that we have had a number of.

Mr. VOGT. Positive train separation is very high on our priority list. It is on our most wanted list and it is something we have been very active in fostering. And, as you probably know, Burlington Northern did a fairly extensive analysis in its Aries system a few years ago using satellites. It is our understanding that the industry, through the AAR, has now embraced an alternate approach through implanted transponders in the tracks.

The Department of Transportation and the FRA right now are in the process of coming forward, we are told, with a strategy by July 1. I think that the Assistant Secretary needs to report to the Congress at that point. We are aware of the discussions that are going on. We have participated in an ancillary degree with that.

We have made recommendations both to the FRA and to the AAR calling for a timetable for implementation of positive train separation, and we were somewhat disappointed in the response we got, but we are in the process of a dialogue with them and we hope that something will come out of that.

Mr. COLEMAN. Could you describe the disappointment for a second? Was that from the industry you were disappointed?

Mr. VOGT. From the AAR. I am hopeful that what the Department is doing right now will produce some positive results in terms of the industry embracing some form of positive train separation. As you point out, their contention is that it is prohibitively expensive, and some of the technologies may well be.

We think there is a lot in between, though. Not every situation demands it but there are some situations which clearly could demand it. I think that at the point in which it becomes economically viable then the industry will embrace it.

We would welcome funding from any source. We just think it is a very important safety matter and you can look at almost all of the train collisions that could have been prevented by positive train separation.

So it is very important to us and if it takes Federal funding, then that is okay with us. We would just like to see it happen, and right now we are concerned that it will not happen, certainly to the extent we think and would hope that it should.

RAILROAD SAFETY

Mr. COLEMAN. You know, I am interested that in your statement you mention being disappointed about the AAR. I have to tell you there are a lot of us who think that in dealing with some of our huge—hard to describe—but massive problems of moving people and commerce across bridges and across overland routes, it is just

phenomenal what we all go through in order to do these kinds of things, you know.

I remember Frank Wolf talking about how old we are, and life is too short for us to be going through this on a day-to-day basis. The enjoyment of being able to have an interaction on either side of the Potomac, for example. You can imagine what it is like to close down—we have done it I think with the Case Bridge. Almost that bad but not quite. It still moves. But what you are supposed to do is give about another two or three minutes for people to look in your trunk. That happens in my district. And the traffic seems about as bad as at the Case Bridge. It is a difficult situation.

A lot of us are looking for alternatives, one of them being rail, and certainly cargo by flight, those kinds of issues. But I have to say to you that in fact to discuss with the rails how we can better effectuate an efficient, streamlined system, it seems to me with the railroad it is like pulling teeth to get them to come to the table. It is astounding.

Some of the suggestions that have been made by the military, the MAP program, where the military and the civilian sector will work together to resolve issues, the military is very interested in having a better, for strategic mobility purposes and rapidly deployable defense forces, they are interested in having rail participants. They are never at the meeting.

Maybe their financial problems are so great they do not feel they can participate. If that is the case, then I guess maybe they should say so. But I thought the AAR would at least come to the table to discuss these issues.

I would hope, Mr. Chairman, that I could suggest to the Ranking Member that we consider having hearings with respect to rail safety issues as well as where we are going to go from here and what role the Federal Government, if any, could play in being helpful. It seems to me that, overall, our overall transportation system needs some alleviation of problems in certain area. In fact, it does not seem that way; I know it is that way in certain areas.

And I would be very interested in having your board participate, at least be present, in such hearings and such meetings, because I think it all relates to each other, whether safety or moving of commerce or whether we can effectively and efficiently as a country deal with these problems.

Mr. VOGT. We would certainly be very interested and commend your thoughts on that.

I would point out that one of the intermodal sources of fatalities every year, over 600 per year, are at grade crossings. And we like to think that some form of positive train separation might positively impact on that. But it is certainly a situation where we have intermodal problems and the more attention that is paid to it, the better, as far as we are concerned.

RAILROAD SAFETY

Mr. COLEMAN. There is even the technology I know that has been under discussion about warnings on bridges that may not be capable of sustaining the weight of an oncoming or dealing with an oncoming train. Those are the kinds of issues I think we should be able to address.

Do we have to wake everybody up and say we are about to get into the next century, maybe we could come into this one to some extent? If the technology is on the shelf, there are a lot of us, and one of my colleagues here I know who shares with me the same thought, a lot of the technology that is on the shelf that we are able to utilize but do not.

Why the United States decided we had to wait for another 20 or 30 years to use what we knew how to do is phenomenal. But it seems to me that we kind of all have that responsibility I think in terms of these safety issues as well and if we need to lead the way I think we should do that. But I really think, I think that private industry will see the advantages of it.

Mr. VOGT. We would certainly support anything that brings constructive attention to all of these issues and they are very real.

Mr. COLEMAN. Well, thank you very much for your testimony and I appreciate the time. I apologize for being late.

Mr. VOGT. Thank you, Mr. Coleman.

TRANSPORTATION SAFETY

Mr. PRICE. Thank you.

Mr. VOGT, I would like to invite you to step back a moment. We have gotten into a lot of detailed matters this morning and many specific issues, but I wonder if you could comment in general about the kinds of gains we have made in safety, and the major problem areas that you see. There is some moderately good news according to the Department of Transportation. Fatalities across almost all transportation modes have dropped by 23 percent since 1980. The most recent statistics for 1992 show a 4.9 percent drop in transportation fatalities as compared with the previous year.

From the Safety Board's perspective, what would you identify as the areas where we have made the greatest gains in improving transportation safety and where would you identify the greatest needs?

HIGHWAY SAFETY

Mr. VOGT. Well, that is an inviting couple of questions. I think we have made some significant strides in surface transportation, and those fatalities have been trending down over the years, and your best information is that there has been a decrease in alcohol involvement, although over half of the fatalities on highways are alcohol involved. But we see a lot of legislative progress at the State level in dealing with alcohol, and we think that that is going to bear some fruit. So we are encouraged that that is happening. Killing almost 40,000 people a year, though, is still an enormous problem, and one that needs to be dealt with in a variety of ways.

AVIATION SAFETY

In aviation, we have seen a decrease in fatalities. Unfortunately, in general aviation, it tends to track the decrease in the numbers of flight hours every year. Those are not hard statistics, but we think they are fairly accurate, and you get a general impression that the numbers of fatalities go down with the decrease in the use

of general aviation aircraft. So that is kind of a bittersweet aspect to it.

In 121s, that is a major transport category, the situation is very impressive right now. As we look ahead—and let me answer both parts of your question here in regard to aviation—almost everyone predicts an annual worldwide increase of about 6 percent per annum in the numbers of people transported in scheduled airline activity. And so if our accident rate remains the same, we are going to have more accidents. So in order to stay even we are going to have to get better in terms of our safety record. So that is something that just demands constant vigilance.

We are seeing a growing commuter aircraft and that has been the attention of several hearings recently. It is a very safe way to travel, but, relatively speaking, it has some aspects to it that major airline transportation does not. Because these aircraft are involved in takeoffs and landings to a much greater extent than long-range transport aircraft, and the takeoff and landing phase is where most accidents, 65 percent of the accidents, occur in one of those two phases—the first two minutes or the last four minutes of a scheduled flight.

They also fly in the weather. They do not fly at high altitudes much of the time, and they are now an entry path for young aviators into the commercial aviation sector. So we tend to have, at least in some cases, low time pilots flying in this very difficult environment, and a lot of attention is being paid to that. Their safety record, as I mentioned, is good, but we think there are some ways to improve that record, through additional training requirements, and I believe that Mr. Hinson is moving in that direction. So I see some improvement there already taking place, but that is something that needs attention.

RECREATIONAL BOATING SAFETY

One of the areas I think not getting adequate attention is recreational boating safety, and it is second only to highway accidents in terms of fatalities every year. It is second by a wide margin but there are several hundred people killed every year in recreational boating accidents, and that needs a lot of attention.

It is getting attention in the private sector, and in some States, but alcohol involvement in recreational boating is a very real and very dangerous aspect. People's reluctance to use personal flotation devices to the extent they should, particularly with children, is something that I think requires a lot of attention. There are over a half million boats in Florida right now that can exceed 50 miles an hour that are recreational boats.

MARITIME SAFETY

We have spent a lot of time working over the last few years on passenger safety because of the burgeoning industry in cruise line operations. Most of these cruise lines, in fact I think almost all of them, are foreign-flagged vessels operating out of our ports with American citizens. And several years ago there were some tragic accidents involving these cruise line ships.

I must say over recent years there has been substantial improvement. The Coast Guard, and we think largely inspired by pressure

from the Safety Board over the last few years, has gone to the International Maritime Organization and brought about some very positive changes in passenger safety requirements.

There are still problems in firefighting, in language as you were pointing out, Mr. Coleman, these crews are international crews, they very seldom speak the same language, so in an emergency situation that is an important aspect. The major cruise lines, I believe, are doing a very responsible job. There are some that are on the margin that we cannot be so sure about.

Movement is in the right direction there, but I think that that still requires some considerable attention.

HEAVY TRUCK SAFETY

Trucks, we have talked about that a little bit earlier, particularly in fatigue and braking. Fatigue is a problem that covers all modes of transportation. We have looked into it extensively in aviation. Railroads have a real problem with work schedules and fatigue. We think it has played a role in several train accidents.

And so you begin to go across modes to look at some of the universal concerns that apply in different areas and certainly work scheduling and rest are two that need all the attention they can get. And I think they are getting attention now.

Once you pay attention to it then the difficulty comes in as to what do you do about it in the workplace, because there are some very strong competing interests in maintaining it this way. It is between management and unions and pay scales and so on. So there is some compounding factors there.

Recently, in trucks, for example, because of a fortuitous economic advantage to take long-distance loads, truckloads on trains rather than to truck them over transcontinental distances, we have seen a diminution in the long-distance truck driving, and that has, I think, kind of a side effect as a beneficial impact on truck safety.

BUS SAFETY

We have looked into school buses, and buses, tour buses, in the last year. And there are some very disturbing things about the tour bus industry, because some of it is just mom and pop operations, very small. We had one tragic case up in New Jersey where the owner of the company was driving the bus, his wife was on board and they were both killed along with a lot of passengers and the bus was an absolute basket case. It had not been maintained. The brakes were in terrible shape. They had a brake failure and lost control.

We participated in some on-the-side-of-the-road ad hoc examinations of bus braking systems and the results were very disturbing. There were large numbers of them where the brakes were out of tolerance. There is an ongoing debate in the trucking and the bus industry about who should bear the burden, whether the manufacturers of the brakes or the operators of the vehicles. We hope that that is going to come to resolution and it should make a major difference just in the braking systems and their reliability. But that is an area of concern, particularly in tour buses.

School buses, we have done a lot of work in that area, and there is an ongoing controversy, I suppose you could say, about the use

of seat belts in school buses. Our position has been that their use is not warranted; that the major problem in vehicle crashes, in bus crashes, is people being expelled from the vehicle and fatally injured. People who stay within the vehicle tend to survive unless they are in a direct impact or crush area. But that whole concern about the numbers of exits on buses, we have made some recommendations over the years to increase the number of exits and they have been accepted. But that is going to continue to be an area of concern to us.

PIPELINE SAFETY

In pipelines, we talked about that somewhat earlier. The Brenham accident involving a salt dome near Brenham, Texas, which was only 85 miles from where I grew up and used to live and I have friends down in Houston who had their windows shattered from the impact of that thing. These are major concerns, and we have got a number of recommendations pending on pipeline safety.

I am sure I have left something out, but that is kind of a general overview of a number of these areas.

MOST WANTED LIST

Mr. PRICE. It is a very useful overview. You have highlighted most of the items I believe on your "Most Wanted" list.

Mr. VOGT. Yes.

Mr. PRICE. Let me ask you about that "Most Wanted" list. You updated it, I understand, less than a year ago, in April 1993. How often do you update the list and are there new items on the list or items that have been dropped that you would like to highlight?

Mr. VOGT. Well, we dropped last year the item for upper anchorage adjustable seat belts and restraint systems because we found that they were being implemented. This is to allow the upper anchorage point to be adjusted up and down on a restraint system.

We do not have any new items proposed right now for the list. We review it at least annually, and I don't know when we are coming up on our next review. Barry is our guru on that.

Mr. SWEEDLER. Next month.

Mr. VOGT. Next month. So we will be looking at it again and I am hopeful there will be some recommendations to drop things off of it because that means progress. But a number of things on there have multiple aspects to them, and so the fact they stay on there for a long period of time does not necessarily mean that progress is not being made.

Mr. PRICE. But, within a month you will have a——

Mr. VOGT. We will review it again.

Mr. PRICE. You will have the new list available. We have had another vote called. I had some questions, particularly about youth drinking and driving. We will submit those for the record, along with a number of other questions.

We appreciate your being here today. You are, as always, forthcoming and responsive to our questions. We are grateful for the work that you do. We will have some other questions for the record and, with that, we will adjourn the hearing. Thank you for your presence today.

Mr. VOGT. Thank you, Mr. Price and Mr. Coleman.
Mr. COLEMAN. Thank you.

TRANSPORTATION SAFETY TARGETS

Mr. PRICE. Secretary Peña has testified recently that safety is the single most important job for the Department of Transportation. Yet, the General Accounting Office has concluded the DOT lacks the data to properly assess its total investment in safety, and that the Department does not know the total public and private investment in safety.

Does the Department have the appropriate tools to identify targets of opportunity where additional resources devoted to improving transportation are likely to yield the greatest payoffs?

[The information follows:]

Identification of significant transportation safety issues and potential safety countermeasures, and the Department of Transportation's leadership in this area, is a vital concern of the Safety Board.

Lack of cooperation and coordination between government and industry, between various federal agencies, and even between DOT's modal administrations has sometimes constrained the availability of accident and exposure data, the identification of viable transportation safety targets, and the design of appropriate safety efforts. Efforts by the DOT in the last few years have, however, resulted in improved communication and cooperation in several areas. Establishment of the Federal Interagency Transportation Statistics Committee (FITSC) in 1990 has provided for the exchange of information among DOT modal administrations and other federal agencies (including the Safety Board), although the Board is concerned that safety issues have not been placed high on the agenda of the FITSC.

The creation of the Bureau of Transportation Statistics under the Intermodal Surface Transportation Efficiency Act (ISTEA) also represents a recent development that should facilitate transportation data collection and planning, including a focus on safety issues. Again, the Board is concerned that transportation safety receives appropriate priority within the Bureau.

Mr. PRICE. How can we better evaluate what the highest priorities for additional resources for safety improvements should be?

[The information follows:]

The factors involved in evaluating the placement of resources for transportation safety improvements are: Lives saved; injuries prevented or reduced in severity; and property damage prevented or reduced in severity.

In evaluating priorities for additional resources for transportation safety improvements, each of these areas must be considered. The test comes in insuring that the data exists to determine which transportation safety issues lives lost, injuries caused, and property damage caused. The Board has recommended that various data be collected to give regulatory agencies better tools with which to determine how these 3 areas will be effected by the application of a proposed enhancement.

INTERMODAL SAFETY ISSUES

Mr. PRICE. In testimony before the Public Works Subcommittee on Oversight, Dr. Lauber of the Safety Board testified that "coordination and exchange of information among the modal administrations in the past has been somewhat sporadic and in some instances nonexistent" and that "there are safety issues common to all transportation modes that warrant a coordinated and consistent approach to their resolution."

Would you give us some examples of where the DOT has made progress on intermodal coordination, and some examples of where the coordination has stalled?

[The information follows:]

The Department of Transportation (DOT) is addressing several safety issues from an intermodal approach including operator fatigue, drug and alcohol testing, grade crossing safety, and the collection and analysis of accident-related data. For example, in the fatigue area, DOT has established a Human Factors Coordinating Committee, with representatives from all the modal administrations, to coordinate and communicate on research efforts. The DOT has recently established an interagency committee to examine the issues of highway/rail grade crossing safety. Further, efforts by the DOT in the last two to three years have resulted in several steps to encourage intermodal discussions of data requirements and data uses.

RECOMMENDATION ACCEPTANCE RATE

Mr. PRICE. Is the Safety Board satisfied with the acceptance rate of its recommendations in the various modal administrations within DOT? Which modes need to do a better job?

[The information follows:]

The Safety Board is satisfied with the progress being made in working with the modal administrations in the Department of Transportation (DOT) to bring about a greater level of acceptance of our safety recommendations. It has been a continuing goal of the Board to increase both the "Acceptance Rate" and the "Rate of Acceptance" measurements of effectiveness.

These two effectiveness measures were developed in the early 1980s and are defined as:

$$\text{Acceptance Rate (expressed as \%)} = \frac{\text{Sum of all "Acceptable" Recommendations (Open \& Closed)}}{\text{All Issued - (sum of non-category status recommendations)}}$$

"Non-category" recommendations are those listed as "Awaiting Response," "Response Received," "No Longer Applicable," "Reconsidered," and "Superseded."

$$\text{Rate of Acceptance (expressed as \%)} = \frac{\text{Sum of all closed "acceptable"}}{\text{Sum of all closed}}$$

It has been the Board's experience that both the Coast Guard and the Federal Railroad Administration do not provide the same level of commitment to responding to our recommendations as do the other administrations in DOT. However, we are pleased at the willingness of these two agencies to work with us over the past five or so years to correct this situation.

COAST GUARD RECOMMENDATION ACCEPTANCE RATE

Mr. PRICE. In the past few years, the Coast Guard has had one of the lower acceptance rates of NTSB recommendations of all the DOT modal administrations, about 75 percent. A recent Inspector General audit of the modal administrations' response time for Safety Board recommendations found that the Coast Guard takes an average of six months to respond to Safety Board findings and that figure is getting worse, not better. By comparison, it takes the FHWA about three months, FAA about two months, and RSPA less than two months. Why does the Coast Guard appear to have continuing problems responding to and accepting your recommendations?

[The information follows:]

We have found that the Coast Guard tends to refrain from responding to any recommendation package involving an accident in which there is litigation pending. Even if only one in a number of recommendations involves possible Coast Guard litigation, the Coast Guard holds back the entire package. Further, the Coast Guard is second only to the Federal Aviation Administration (FAA) in the number of safety recommendations received from the Safety Board; yet they have not had the institutionalized administrative procedures that the FAA (and other Department of Transportation administrations) have developed over the years.

However, we have worked closely with the Coast Guard in the last four years and our statistics show that their timeliness is improving.

UNACCEPTABLE RECOMMENDATIONS

Mr. PRICE. The Safety Board stated last year the FAA and the Coast Guard had the highest number of recommendations classified as "Closed Unacceptable Action" for recommendations issued since January 1987. Generally, what are the reasons the Safety Board would close a recommendation if the agency's response is unacceptable?

[The information follows:]

The National Transportation Safety Board procedures for evaluating the status of a recommendation includes provision for closing a recommendation as "Unacceptable Action." The Board does not take this type of action lightly. Only 16.6 percent of our closed recommendations carry this status.

If an addressee responds to the recommendation telling the Board that they disagree with the recommended action, we will go back at least one time restating the Board's position and include any further evidence or data developed to support the position of the recommendation. If a second response comes back declining to implement the recommendation, and if the Board does not have any further evidence or data to increase the support for the recommended action, we will generally place the recommendation in a "Closed—Unacceptable Action" status.

The Board does hold some recommendations as "Open—Unacceptable Response" even after a second negative response if a new accident has occurred which appears to have a similar issue involved, or if a safety study is underway which contains the issue, or if we believe that further evidence or data will soon become available to support the position.

MOBILE, ALABAMA, RAILROAD ACCIDENT

Mr. PRICE. The Safety Board is now well into investigating the Amtrak accident in Mobile, Alabama, that claimed 47 lives. Would you update us on the status of your investigation and what you learned at the three days of public hearings you held on the accident?

[The information follows:]

About 2.53 a.m. (CDT), on September 22, 1993, Amtrak train No. 2 (the Sunset Limited) consisting of three locomotive units and eight passenger cars derailed into Big Bayou Canot about 10 miles north of the Mobile, Alabama passenger station. The train was traveling about 72 miles per hour when it derailed.

To date, the Safety Board's investigation has revealed that the tugboat MAUVILLA with her tow of six barges, had mistakenly entered the Big Bayou Canot, and in heavy fog conditions, struck the railroad bridge just minutes prior to the arrival of the Sunset Limited. We have established by laboratory examination that the damage to the bridge, pier, and bridge span girder is consistent with the damage on the port and center lead barges in the MAUVILLA'S tow. The resultant contact between the barges and the bridge shifted the track sufficiently to cause the lead locomotive to strike the east girder of the through girder span, leading to the derailment of the Sunset Limited.

The National Transportation Safety Board investigators have completed their fact-finding activities, and the report is being written.

The hearing was effectively used by the Safety Board investigators to complete the record so that all information needed to analyze and support the safety issues in the final report is available. The hearing also served the purpose of disseminating all currently known factual data to the parties to the investigation, as well as to the public.

MOBILE, ALABAMA, RAILROAD ACCIDENT

Mr. PRICE. What can you tell us about the condition of the bridge over the Bayou Canot and whether the CSX Corporation and the Federal Railroad Administration had taken appropriate steps before the accident to ensure the bridge's safety?

[The information follows:]

Bridge engineers for CSXT have rated the bridge at an E-74 (Coopers Bridge Rating), and consider the bridge capable of carrying the current railroad traffic. CSXT inspectors conducted an annual bridge inspection on February 10, 1993, about seven months before the accident.

To ensure the safety of the equipment using the bridge, the CSXT conducts annual inspections of the superstructure and portions of the substructure that are above water; and underwater inspections are conducted at five year intervals for the portion of the substructure below the water. CSXT track and signal inspections were performed as required by the Federal Railroad Administration regulations. Other than bridge worker safety standards, the Federal Railroad Administration does not have standards for bridge inspection.

BARGE/BRIDGE COLLISIONS

Mr. PRICE. We increasingly hear about barge collisions with bridges. In January of this year, a potential disaster was averted in Amelia, Louisiana, when a bridge tender notified authorities a barge had hit his bridge just minutes before an Amtrak train was due to pass over it. These recent accidents have called into question the overall safety record of the inland towing industry.

How frequent are barge bridge collisions? What is the magnitude and nature of the problem?

[The information follows:]

Information developed during the investigation of the Mobile accident indicates that bridge/barge accidents are far more common than originally thought. Many bridge/barge collisions continue to go unreported. A collision between a barge and a bridge is an accident in itself. It is only when the initial accident causes a secondary accident such as the case in Mobile, Alabama, that significant attention is paid to the problem.

Over the years there have been many collisions of barges with bridges; however, most of these accidents have not resulted in loss of life. However, the Safety Board has been concerned that the potential for high loss of life is always present in this type of accident.

The Safety Board has investigated several bridge accidents involving barge collisions as listed below.

In April 1978, the Motor Vessel STUD rammed the Southern Pacific Railroad Bridge over the Atchafalaya River in Berwick Bay, Louisiana, which has the dubious distinction of being the most frequently struck bridge in the nation. This accident caused about \$1.4 million in damages to the railroad, but fortunately did not result in any deaths or injuries.

In April 1983 and again in April 1984, the Poplar Street Bridge in St. Louis, Missouri, was struck by tows causing about \$9 million in damages in 1983 and almost \$3.3 million in damages in 1984. There were no serious injuries or deaths in either accident.

In May 1993, the Motor Vessel CHRIS pushing one barge struck the Judge Seeber Bridge in New Orleans, Louisiana. The ramming resulted in the collapse of two spans (a 145-foot section of the bridge deck) and a two-column bent (support structure) onto the barge and into the New Orleans Inner Harbor Navigation Canal. Two automobiles containing three persons crossing the bridge at the time of the ramming, also fell with the four-lane bridge deck resulting on one death and critical injuries to two persons. As a further result of the accident, the canal was closed to navigation traffic for approximately 30 hours causing a 65-hour delay for canal traffic and the bridge was closed to vehicle traffic for two months. Although the barge suffered only minor damage in the accident, the damage to the bridge was estimated at \$1.5 million.

In addition, the Board has investigated many accidents involving the breaking away of barges from their moorings. These barges then drifted downstream and collided with structures and vessels downstream. Most notable was the December 1982 breakaway of 38 barges from their moorings in the Arkansas River. There were no deaths or injuries in this accident but a State highway bridge, and a grain dock were rammed and 16 barges lodged up against Dam No. 2 of the McClellan-Kerr Arkansas River Navigation System, endangering the integrity of the entire navigation system. Property damage and salvage costs were estimated at over \$12 million.

BARGE AND TOWING OVERSIGHT

Mr. PRICE. According to media reports, the inland towing industry has been described as "largely a self-regulated industry" upon which the Coast Guard has relied to police itself. In fact, one unnamed official is quoted as saying "The Coast Guard has been co-opted by the industry". It appears that some very basic requirements that affect safety, for example, requirements that towboats have radar, charts or some basic navigational equipment; that pilots are familiar with that equipment and river conditions; and that tow pilots can actually run a towboat or large ship are minimal rules the government should insist on. What Coast Guard regulations and procedures need to be improved to prevent these accidents?

[The information follows:]

The Safety Board feels that the Coast Guard has been reactive in its oversight of the barge and towing industry.

Since the passage of the Towing Vessel Operator Licensing Act (OPA) of 1972, the requirements for operators have not changed to any appreciable extent. There has not been any changes in licensing requirements, although towboats can move large quantities of bulk oil and hazardous materials using operators with minimum skill levels. It is only through the operation and training of conscientious companies that have raised the level of qualifications of its licensed personnel.

In the preamble to the towboat operator licensing regulations printed in the Federal Register of March 2, 1973, the Coast Guard promised to write a program "to provide an input to the computerized casualty information and analyze files that will accumulate, identify, and store any reference to a towboat casualty involving personal error . . ." The Safety Board feels that after 30 years the Coast Guard should be able to increase the training and license examination levels of operator applicants. Areas of operation endorsed on licenses should be more restricted, not just a blanket route; i.e. Western Rivers, Inland waters, or the Great Lakes.

In the area of equipment, no changes have been made. A towboat is only required to have a radio for bridge-to-bridge navigation information exchanges. There are no requirements for any navigation equipment, such as radar, nor any requirements on training or certifying operators as radar observers, even though virtually all towboats have such equipment. If the operator of the MAULILLA had received formal training in radar, as is required for inspected vessels of 300 gross tons or more, and radar equipped, the operator may have recognized his error entering the Big Bayou Canot. Licensed deck officers on all vessels fitted with radar should be required to have a radar observer endorsement.

BARGE ACCIDENT STATISTICS

Mr. PRICE. It has been reported that one of the Nation's largest barge lines may have been under-reporting injury accidents. What information do you rely on to assess inland navigation safety. How reliable are those statistics?

[The information follows:]

Generally, the National Transportation Safety Board receives reports of injuries in conjunction with a major marine casualty, but not those solely involving personal injury accidents. The reporting of personal injuries to maritime personnel, if not part of a major marine casualty is not necessary for the Board's work. In general, the notifications we receive for major marine accidents are reliable. Safety Board investigations of major marine accidents do review and analyze navigation safety, and safety recommendations are made to correct problems discovered.

DOT MARINE SAFETY PLAN

Mr. PRICE. The Secretary of Transportation has released an action plan to address critical safety issues, including training and licensing tow and barge operators, the structural integrity of the Nation's railroad bridges, and the need for new bridge protection

measures and devices to warn trains of damaged railroad bridges. Has the Safety Board analyzed this plan? If so, what is your reaction?

[The information follows:]

In general, the Safety Board applauds Secretary Pena's actions in response to the Mobile, Alabama, Amtrak derailment. The Safety Board has developed many of the same issues in our investigation and we will comment on the Secretary's actions as part of the Mobile accident report. The Safety Board's concern is that the Department of Transportation follow through in the areas where they find deficiencies and make the changes in the regulations and oversight authority as quickly as possible to protect the public from future bridge accidents.

RAILROAD BRIDGE WARNING LIGHTS

Mr. PRICE. The Coast Guard has requested that CSX, the owner of the bridge struck in the Mobile, Alabama, Amtrak accident, install warning lights on the bridge, which spans the Bayou Canot, a nonnavigable waterway. Should all bridges over nonnavigable waterways that are accessible to commercial transportation be required to have lights or other devices to notify vessels in the waterway that bridges are present?

[The information follows:]

The need for warning lights on bridges should be based on an individual assessment of the relative risk the water way traffic poses to a specific bridge. It is important to provide both adequate and appropriate protection to those bridges at risk based on such an assessment. In some cases, the assessments could show that the appropriate response would be to add lights, whereas in other cases the appropriate response could be very different action.

RAILROAD BRIDGE SENSORS

Mr. PRICE. In 1980, the Safety Board recommended that sensors be placed on railroad bridges to alert trains to bridge damage. Does the Safety Board still recommend this action? Would that have prevented the Amtrak accident in Mobile?

[The information follows:]

In response to the Mobile, Alabama, accident, dozens of manufacturers and inventors have announced systems designed to detect bridge misalignment. The systems are based on a variety of technologies, including laser beams, smart tie plates, trip wires, strain gauges, and accelerometers to name just a few. At this time there is no one "state of the art" system.

This is an issue that will be further explored in the Board's final report of the accident.

AUTOMATIC BRIDGE DETECTION SYSTEMS

Mr. PRICE. What information do you have on the availability, reliability, and cost of automatic detection systems that could identify misalignment or other structural damage to railroad bridges?

[The information follows:]

At the National Transportation Safety Board's public hearing regarding the derailment near Saraland, Alabama, of Amtrak train 2, the Sunset Limited, testimony was presented describing two possible systems that would identify misalignment or other structural bridge damage.

One system was discussed by a representative from the Advanced Technology Group of Union Switch and Signal. As described, the system would employ fiberoptic technology and strain gages to detect motion. According to the witness, the system's development is several years away, and its estimated cost would be between \$20,000 to \$30,000 per bridge.

A second method discussed was a slide detection fence system. A slide detection fence system has been used for many years in the railroad industry to warn train

operators of track misalignment or blockages. It works basically on the principle of a "trip wire," either elongating or breaking, which in turn causes a signal to be transmitted to the train dispatcher or directly to the Wayside track signal system to stop train movements when the track has been either blocked or misaligned as a result of a rock and/or mud slides, or washout.

The Safety Board is aware of another device which, according to the manufacture, detects structural, ground or machine movements through the use of high precision electrolytic tilt transducers as the internal sensing element. The manufacturer indicated the device could be modified for bridges either to monitor individual spans or the entire structure. Costs of the system would be dependent on the number of bridges, spans, parameters, and quantity. The unmodified units have a cost of \$1,100 to \$2,500 plus installation.

AUTOMATIC BRIDGE DETECTION SYSTEMS

Mr. PRICE. I understand that some experts have testified that existing fiber-optic technology could be applied in less than two years at a cost of \$20,000 to \$30,000 per bridge. Is that assessment accurate? Are these devices in use today?

[The information follows:]

At the National Transportation Safety Board's public hearing regarding the derailment near Saraland, Alabama, of Amtrak train 2, the Sunset Limited, testimony was presented describing two possible systems that would identify misalignment or other structural bridge damage.

One system was discussed by a representative from the Advanced Technology Group of Union Switch and Signal. As described, the system would employ fiberoptic technology and strain gages to detect motion. According to the witness, the system's development is several years away, and its estimated cost would be between \$20,000 to \$30,000 per bridge.

The Board is not aware of any fiber-optic device that has actually been tested, developed or installed to detect and monitor bridge misalignments.

NEW ORLEANS HIGHWAY BRIDGE ACCIDENT

Mr. PRICE. In another barge-related incident, the Safety Board conducted hearings in October 1993 on the collapse of the Judge Seeber Bridge, a highway bridge in New Orleans, after a barge hit it. What issues did you explore at the public hearings? What information was gained that might prevent similar accidents?

[The information follows:]

During the public hearing concerning the collapse of the Judge Seeber Bridge, the National Transportation Safety Board explored the issues of pier protection for bridges in navigable waterways, and vulnerability assessments for these bridges. The Safety Board learned that a methodology for collision vulnerability assessments for highway bridges in navigable waters is in place for newly constructed bridges. However, no such vulnerability assessment is currently applied to existing bridges. This important issue will be explored in our final report on the Judge Seeber Bridge collapse, scheduled to be completed during the summer of 1994.

FT. LAUDERDALE GRADE CROSSING ACCIDENT

Mr. PRICE. 1993 was a year in which we saw a spate of deadly highway-rail grade crossing accidents. You recently completed investigating the grade crossing accident in Ft. Lauderdale where an Amtrak train struck a loaded gasoline tank truck that was stalled on the track. What did you learn in your investigation. What was the cause of the accident?

[The information follows:]

About 3:13 p.m., Wednesday, March 17, 1993, an Amerada Hess tractor-semitrailer hauling gasoline was struck by National Railroad Passenger Corporation (Amtrak) train 91. The truckdriver was attempting to cross a railroad/highway grade crossing on Cypress Creek Road in Fort Lauderdale, Florida. Traffic in the

area of the crossing was congested because the left and center lanes were closed for road work just over the crossing. Traffic was being channeled into the right lane and later shifted into a right-turn lane. The truck, which was loaded with 8,500 gallons of gasoline, was punctured when it was struck. A fire erupted, engulfing the truck and nine other vehicles. The fire killed the truckdriver and five occupants of three stopped vehicles.

Safety issues discussed in the Board's final report were the performance of the truckdriver and traffic control in work zones near railroad/highway grade crossings.

The National Transportation Safety Board determined that the probable cause of the accident was the inadequacy of the precautions taken by the Broward County project manager, the design engineer, and the contractor, which resulted in traffic congestion at the railroad/highway grade crossing, and the truckdriver's decision to cross the railroad track even though the warning system had been activated.

DOT GRADE CROSSING ACTION PLAN

Mr. PRICE. Last year, you told us that the area of grade crossings would be a high priority for the Safety Board. Have you reviewed Secretary Peña's action plan for enhancing Federal safety efforts related to highway-rail grade crossings and, if so, is the Department taking the necessary steps to address this issue?

[The information follows:]

The grade crossing safety initiatives announced by the Secretary of Transportation will reinvigorate the Federal Railroad Administration's (FRA) grade crossing safety program. Each year nearly 600 people are killed in train/motor vehicle collisions and actions by the FRA to reduce the number of grade crossings (crossing closure), improve warning systems, provide better passive signing, and increase public education and awareness are likely to reduce the number of accidents and fatalities.

However, we also believe that the FRA program is challenging, and its ultimate success will require the coordinated efforts of a wide variety of agencies, organizations and entities.

GRADE CROSSING SAFETY

Mr. PRICE. Public education activities, such as Operation Life-saver, do not appear to be sufficient to deter individuals who are more likely to ignore grade crossing warnings and evade grade separations. Experience in other areas, such as seat belt safety, has shown that public education is effective only with some groups of people. Aggressive law enforcement is key to changing behavior among hard-to-reach individuals. The same may be true for grade crossing accidents.

What should the Federal Railroad Administration and the Federal Highway Administration be doing to promote tough enforcement of traffic laws at grade crossings?

[The information follows:]

The Safety Board has recommended that several actions be undertaken, including: improved signage at passive warning locations (locations where there are no active warning devices, i.e. flashing lights or gates); application of reflectorized materials to railroad rolling stock; required removal of obstacles at the four quadrants at passive grade crossing locations so that motor vehicle operators can make decisions about safely crossing; and improved educational programs such as Operation Life-saver, the national voluntary grade crossing safety program. Many of these improvements could be accelerated by government action.

SENATE GRADE CROSSING LEGISLATION

Mr. PRICE. Senator Exon has proposed legislation to make it illegal for truck drivers to begin crossing railroad tracks if they do not have room on the other side to completely leave the track. What do you think of this approach?

[The information follows:]

The National Transportation Safety Board has not adopted a position on this specific issue; however, accident investigations have shown that most grade crossing truck collisions result from truckdriver performance issues not related to the clear zone on the opposite side of the tracks. The Federal Motor Carrier Safety Regulations currently contain requirements for truck drivers to stop or slow at railroad grade crossings. CFR 49 §392.10 states:

"... shall not cross a railroad track of tracks at grade unless he first; Stops the vehicle within 15 feet of, and not closer than 15 feet to, the tracks; thereafter listens and looks in each direction along the tracks for an approaching train; and ascertains that no train is approaching. When it is safe to do so, the driver may drive the vehicle across the tracks in a gear that permits the vehicle to complete the crossing without a change of gears."

The Safety Board believes that this regulation does not specifically address a prohibition for all truck drivers from crossing railroad tracks if they do not have room on the other side to completely clear the track.

FLORIDA GRADE CROSSING SAFETY

Mr. PRICE. It has been reported that the number of grade crossing accidents in Florida has declined significantly since some municipalities have increased fines for driving around gates from \$47 to \$1,500. Has the Safety Board taken a look at this issue? Are there roles for the FRA and FHWA to promote stiffer State and local penalties for grade crossing violations?

[The information follows:]

The Safety Board has reviewed data from the FRA grade crossing database and did not observe a notable change in the number of Florida drivers who are involved in grade crossing accidents after driving around or through crossing gates. Enforcement is an important component of a comprehensive grade crossing safety initiative, but it is only one component. The Safety Board would not encourage enforcement initiatives at the expense of educational programs and programs that promote crossing closure and improvements to existing crossings. Enforcement initiatives only reach those drivers who break the law and are caught. Educational initiatives, on the other hand, have the potential to reach a much larger audience. The Board's new study of grade crossing safety is expected to lead to safety recommendations that will suggest improvements to FRA and FHWA safety programs.

GRADE CROSSING SAFETY TECHNOLOGY

Mr. PRICE. Last year, we talked about the reliability of current grade crossing technology and the potential application of IVHS technology. Has the Safety Board examined using new technology to prevent grade crossing accidents?

[The information follows:]

The Safety Board plans to initiate a safety study on grade crossing safety. New technologies will be examined as possible solutions to some of the grade crossing safety problems; IVHS may be one of those solutions.

RECREATIONAL BOATING SAFETY

Mr. PRICE. In 1992 recreational boating accidents were the third largest cause of transportation fatalities. Last year, the Safety Board issued a safety study on recreational boating that recommended States adopt more comprehensive laws, including laws requiring children to wear life jackets, and more training for boat operators.

Fiscal year 1995 for the Coast Guard's boating safety State grant program. Do you agree with the Department's budget recommendation?

[The information follows:]

No. The National Transportation Safety Board considers the recreational boating safety program and the partnership exhibited by the States/Federal government as a safety program that should be expanded not contracted. The Safety Board has made a series of important safety recommendations to the States, the U.S. Coast Guard, the National Association of State Boating Law Administrators, the Corps of Engineers, and the American Academy of Pediatrics that will further reduce the high fatality and injury levels in this industry. A reduction/elimination of funding could result in increased boating fatalities and injuries as State programs weaken.

Mr. PRICE. Are improvements in State oversight over recreational boating likely if we remove the Federal subsidy for State boating safety programs?

[The information follows:]

No. There will be a reduction of recreational boating safety oversight. The reason for the boating safety program was to provide a sound national policy direction for boating safety, particularly since boating fatalities and injuries are high in comparison to other transportation modes. For example, one purpose of the program was to obtain more uniformity among the states in recreational boating laws, especially in areas such as alcohol and drugs, wearing of personal flotation devices, and education programs.

The termination by the Department of this program could be construed as a reduced level of concern about recreational boating safety.

RECREATIONAL BOATING SAFETY LEGISLATION

Mr. PRICE. In the absence of Federal subsidies to improve State boating safety programs, what other measures should be considered to improve State boating safety programs?

[The information follows:]

The legislation before the House Committee on Merchant Marine and Fisheries (H.R. 3786) would establish requirements to ensure safe operation of recreational vessels, to require allocation of State recreational boating safety assistance based on State adoption of laws regarding boating while intoxicated, and a federal requirement for children 12 years and younger to wear a personal flotation device when the individual is on the open deck of a vessel. This legislation is consistent with the intent of the Safety Board's recommendations in this area.

POSITIVE TRAIN SEPARATION

Mr. PRICE. Last year, we witnessed two deadly head-on train collisions: In Gary, Indiana, and in Kelso, Washington. The Safety Board has completed investigating the Gary, Indiana, accident involving two commuter passenger trains, and concluded that accident might have been avoided had some type of train control and separation system been in place. Positive train separation is also on the Safety Board's "Most Wanted List."

Is the railroad industry making a serious effort to develop collision avoidance systems, and is the Safety Board satisfied with the industry's pace?

[The information follows:]

The Association of American Railroads (AAR) is leading the railroad industry effort in the development of a positive train separation system that will provide collision avoidance. The pace is slow because the members of the AAR are not all totally committed to the establishment of a collision avoidance system. The lack of a credible economic analysis that contains the facts and figures that will illustrate the payback that can be expected from the adoption of the technology may be one reason for their hesitation.

ADVANCED TRAIN CONTROL SYSTEM

Mr. PRICE. The Association of American Railroads has indicated that it cannot commit to a timetable for implementation of the Ad-

vanced Train Control System, a joint industry effort on one type of collision avoidance system because it is "not an off the shelf concept and involves unproven technology." Does the Safety Board agree with this assessment?

[The information follows:]

A firm timetable for positive train separation may not be feasible considering the present resistance within the railroad industry. A firm timetable for development of positive train separation, however, is the longterm objective of the safety recommendation. The Safety Board feels that if a firm timetable cannot be developed now, then the least that can be done in response to the safety recommendation is to identify the steps necessary to get to the implementation of a positive train separation system. A definition of the function of a positive train separation system, an assessment of the technology and hardware currently available, possible government funding for research and development of positive train separation system components, and a thorough cost benefit analysis using assumptions that both industry and government can agree with are all milestones on the schedule or timetable for positive train separation.

RAILROAD COLLISION AVOIDANCE SYSTEM

Mr. PRICE. What are feasible goals and timetables for the development of collision avoidance systems by the railroad industry?

[The information follows:]

The National Transportation Safety Board has had discussions with representatives of industry regarding the feasibility of a collision avoidance system. The technology for such a system is available, but time is needed to adapt the technology to the railroad environment and create the software program that will make the system operate. The Safety Board can not say how long this process may take because the scope of the collision avoidance system has not been fully defined.

ADVANCED TRAIN CONTROL SYSTEM COSTS

Mr. PRICE. The railroad industry has indicated that the cost of developing an advanced train control system could run into the billions. I understand that the Federal Railroad Administration has also indicated to the Safety Board that installation of traditional automatic train control systems would be prohibitively expensive. Do you believe that the potential safety payoffs would justify the high implementation costs that may be associated with installing anti collision systems?

[The information follows:]

The Safety Board believes that the business benefits of a positive train separation such as increased track utilization, increased train efficiency, better communication, better control of traffic flow, etc. when added to the safety benefits would justify a positive train separation system.

The FRA has indeed said that such a system would cost billions of dollars, but that figure is based on installing positive train separation everywhere. A positive train separation system may not be the right answer for every rail line in the country. Positive train separation should initially be installed on high speed lines and heavily traveled lines where the benefits in cost and safety are the greatest. It could then spread to the other lines on an as-needed basis.

Mr. PRICE. Considering the potential costs for the development of an automatic train control system, would some form of federal assistance be justified to jump start implementation of this new technology?

[The information follows:]

It may be premature to discuss direct federal development assistance until an independent cost benefit analysis on the system based on assumptions acceptable to the government, the railroads, and the railroad supply industry is complete. The cost benefit analysis should include the advantages due to increased operations effi-

ciency, track utilization, and other advantages to the railroads as well as the cost savings which would accrue from averting train accidents. Such an analysis could be commissioned by the Federal Railroad Administration.

RAILROAD COLLISION AVOIDANCE SYSTEMS RESEARCH

Mr. PRICE. What should FRA's role be in the research and development of collision avoidance systems?

[The information follows:]

The National Transportation Safety Board believes that the Federal Railroad Administration (FRA) should actively manage the development process. The FRA should provide guidance to the railroad industry so that features required for safe operation of trains are properly incorporated. The FRA should also ensure that the system or systems that are eventually installed on the individual railroads are compatible.

LAKELAND, FLORIDA, RAILROAD ACCIDENT

Mr. PRICE. Would you give us an update on what you have learned thus far in the January derailment of the Ringling Brothers Circus train in Lakeland, Florida?

[The information follows:]

During the on-scene investigation of the January 13, 1994, Ringling Brothers Barnum & Bailey Circus train accident, a broken train wheel was found. The wheel is undergoing metallurgical examination at our laboratory for such things as stress fractures, internal defects, and overheating. The investigation of this accident continues and the Safety Board plans to issue a final report later this year.

Mr. PRICE. Are there specialized safety requirements for circus trains, especially considering that these trains are actually the homes of traveling circus employees?

[The information follows:]

There are no specialized safety requirements for private passenger trains like the Ringling Brothers Barnum and Bailey Circus train beyond the safety and equipment rules found in the Code of Federal Regulations, Title 49. By the early 1980s, Amtrak was the sole public railroad passenger service available in the United States, and the Federal Railroad Administration dropped most regulations governing railroad passenger equipment.

The Association of American Railroads Manual of Standards and recommended Practices, Section A, Part III, Passenger Car Requirements, deals with standards recognized by the railroad industry which are necessary and desirable for interchange of passenger cars. Section A of these requirements contains five specifications, 34 standards, and 19 recommended practices.

RAILROAD PASSENGER CAR INTERIORS

Mr. PRICE. In the past, the Safety Board has pressed Amtrak and FRA to improve rail passenger interiors, and to install baggage restraints on trains. I understand that a number of injuries in the Ringling Circus train accident stemmed from unsecured personal belongings. Has Amtrak and the FRA made any progress on this front?

[The information follows:]

The Ringling Brothers Barnum and Bailey Circus train passenger cars are subject to Federal Railroad Administration (FRA) regulations which do not cover passenger car interiors. The Ringling cars are also used for workspace and storage of supplies. The fatal injuries were produced by storage devices not ordinarily found in standard passenger cars. Securement of more commonly found items such as seating, luggage and food service devices have been the subject of several recommendation from the National Transportation Safety Board (NTSB). FRA has refused to formulate safety regulations concerning these items. Hence, no regulations exist for the interiors passenger cars.

Amtrak has modified existing equipment in a very responsible manner to Safety Board recommendations. Food service equipment, luggage retention devices and seating securement are recommendation areas that have been addressed. Retrofit programs are underway on existing equipment and all new equipment orders incorporate NTSB recommendations.

The interiors of the Ringling cars are a subject area of the NTSB's investigation.

AMTRAK SAFETY

Mr. PRICE. Amtrak has experienced a rash of derailments last year, although many seemed to be caused by external factors. What improvements have you seen in Amtrak's safety management and oversight over the years, and what additional improvements need to be made based on your recent investigative work?

[The information follows:]

Amtrak is very receptive to the recommendations provided by the Safety Board. It has improved the way its trains, locomotive engineers and new methods to maintain oversight of their employees and operations have been established. Amtrak has also made substantial equipment changes to incorporate Safety Board recommendations to reduce the number of injuries during an accident and provide passengers with better guidance when evacuating a train. Amtrak has also improved training programs for its onboard service personnel and maintenance staff so that they can better perform their jobs.

LUGOFF, SC, RAILROAD ACCIDENT

Mr. PRICE. Inadequate track inspection practices, maintenance and oversight by CSX was cited by the Safety Board as the probable cause of the 1991 derailment of an Amtrak train in Lugoff, South Carolina. What recommendations were issued to the Federal Railroad Administration and to CSX as a result of your investigation?

[The information follows:]

On November 30, 1993, the National Transportation Safety Board issued the following safety recommendations to CSX Transportation Inc. and to the National Railroad Passenger Corporation. No safety recommendations were issued to the Federal Railroad Administration.

To CSX Transportation Inc: Review and revise, as necessary, existing practices to ensure that track supervisors review their subordinates' track inspections and that switch inspections are adequately documented. (Class II, Priority Action) (R-93-18); review and revise, as necessary, manpower schedules for track and switch inspections to ensure that the track and switch standards of the Federal Railroad Administration and the CSX Transportation Inc. can be met. (Class II, Priority Action) (R-93-19); maintain an up-to-date emergency response telephone list. (Class II, Priority Action) (R-93-20); instruct dispatchers on the use of terminology that can be readily understood by local emergency personnel when advising them to train locations after an accident. (Class II, Priority Action) (R-93-21); revise postaccident drug and alcohol testing procedures to ensure timely specimen collection. (Class II, Priority Action) (R-93-22).

To the National Railroad Passenger Corporation: Require that all on-board service personnel periodically take training in the emergency operating rules and in first aid, cardiopulmonary resuscitation, and the use of the public address system during train emergencies. (Class II, Priority Action) (R-93-23)

LUGOFF, SC, SAFETY RECOMMENDATIONS

Mr. PRICE. In the Lugoff, South Carolina, accident investigation, the Safety Board also recommended that Amtrak require that operating and on-board service train crews attend refresher training in managing emergencies. What was the basis for these recommendations and, in general, how adequate is Amtrak's emergency management?

[The information follows:]

The Safety Board recommended to Amtrak that on board service (OBS) personnel take refresher emergency training due to the findings that some of the OBS personnel involved in the Lugoff accident could not remember receiving emergency response training. Also, there were complaints from some passengers that all of the OBS personnel did not respond adequately to the accident. Refresher training is necessary because some OBS employees stated that the only emergency training that they received from Amtrak is provided when they were hired and no refresher training was offered. Amtrak has taken steps to establish refresher training for their OBS employees emphasizing emergency management procedures.

The Safety Board has not seen any evidence that identifies a problem with Amtrak's emergency management. On the contrary, the Safety Board's preliminary investigation into the Mobile, Alabama accident indicates that Amtrak personnel did an exceptional job managing the emergency situation created by the disaster.

GARY, INDIANA, RAILROAD COLLISION

Mr. PRICE. The Safety Board's investigation of the collision between two commuter passenger trains in Gary, Indiana, resulted in several recommendations concerning passenger car crash-worthiness. Please elaborate on your recommendations in this regard.

[The information follows:]

When the Safety Board adopted the report of the collision of two commuter trains in Gary, Indiana that killed seven passengers and injured 95 persons, it stated that the breach of the passenger compartments of the lead cars of both trains contributed to the severity of the injuries. As a consequence, the following safety recommendations were issued regarding this subject.

To the Federal Railroad Administration: In cooperation with the Federal Transit Administration and the American Public Transit Association, study the feasibility of providing car body corner post structures on all self-propelled passenger cars and control cab locomotives to afford occupant protection during corner collisions. If feasible, amend the locomotive safety standards accordingly. (Class II, Priority Action) (R-93-24).

To the Federal Transit Administration: Cooperate with the Federal Railroad Administration to study the feasibility of providing car body corner post structures on all self-propelled passenger cars and control cab locomotives to afford occupant protection during corner collisions. (Class II, Priority Action) (R-93-25).

To the American Public Transit Association: Cooperate with the Federal Railroad Administration to study the feasibility of providing car body corner post structures on all self-propelled passenger cars and control cab locomotives to afford occupant protection during corner collisions. (Class II, Priority Action) (R-93-26).

HIGHWAY TRAFFIC SAFETY IMPROVEMENTS

Mr. PRICE. While highway safety trends are encouraging, in 1992, as in previous years, highway deaths at 39,200 fatalities outstripped deaths in all other transportation modes. How can we make that next quantum leap in achieving significant gains in highway traffic safety?

[The information follows:]

In 1992, 45 percent of the people who were killed in traffic crashes died in alcohol-related accidents. In that same year, 65 percent of the passenger car and truck occupants who died in accidents were not wearing seatbelts or other restraints. Highway safety improvements will continue if efforts to reduce drunk driving and to encourage seatbelt use are continued.

SEATBELT USAGE

Mr. PRICE. Last year, Secretary Peña announced a new initiative to increase the proportion of Americans who use seat belts to 75 percent by 1997. Does the Safety Board support this new initiative and have you analyzed how NHTSA plans to achieve this goal?

[The information follows:]

The Secretary of Transportation recently issued a goal to increase the use of seat belts from the current 66 percent use level to 75 percent belt use by the end of 1996. The Board believes that this is a reasonable goal. Usage rates have increased from the low teens a decade ago to the mid-sixties now because educational efforts have reached the population most acceptant of the benefits of seat belt use. Any increases in seat belt use from this point on will be more difficult and take longer because of the populations to be reached, such as teenage males. The Board has not reviewed the details of the plan; however, we are aware that the National Highway Traffic Safety Administration is concentrating efforts in the public information and enforcement areas.

Mr. PRICE. Given that other industrialized countries have been able to achieve much higher safety belt usage rates, should we be aiming higher given that 94 percent of annual transportation fatalities in this country are highway deaths?

[The information follows:]

The National Transportation Safety Board believes that the current goal of 75 percent use by 1997 is reasonable. We do not think that a significantly greater usage rate would be a realistic near-term target, unless there are significant changes in the public's attitude about preventing automobile accidents.

SAFETY BELT USAGE BY PREGNANT WOMEN

Mr. PRICE. Recently, General Motors announced that it would undertake research on the safety of pregnant women in vehicle crashes, including the development of a crash test dummy to improve safety restraint systems for pregnant women. What do we know about the use of safety belts by pregnant women?

[The information follows:]

The Safety board is aware that development of a test dummy that represents a pregnant woman is underway and is supportive of those efforts. However, the Board does not have accident data involving pregnant woman.

Mr. PRICE. Has the Safety Board conducted any safety studies in this area?

[The information follows:]

Although the National Transportation Safety Board has not specifically conducted a study regarding restraining pregnant women, our 1988 safety study on the performance of lap/shoulder belts include six cases involving pregnant women and includes a chapter on pregnant women and lap/shoulder belt use. All but one of the six women were in their second or third trimester; three women were seven months pregnant or more. All were wearing the lap/shoulder belt properly. In most cases, both the mother and fetus survived the crash and the fetus was successfully carried to term. In addition, a one year follow-up with parents indicated no impairment due to crash trauma. In the sixth case, the eight month pregnant woman who was restrained, sustained critical injuries but survived. The fetus, however, died from a crushed skull. In this case the mother was seated at the point of impact.

AUTOMOBILE RESTRAINT SYSTEMS

Mr. PRICE. Studies by the Insurance Institute for Highway Safety which analyzed 18,000 driver crash deaths during 1985 to 1992 found 24 percent fewer deaths than expected in cars equipped with lap/shoulder safety belts plus air bags, as compared with cars equipped only with safety belts. Are these findings consistent with those of the Safety Board?

[The information follows:]

The Insurance Institute for Highway Safety (IIHS) findings arose from a study which compared driver deaths in frontal crashes of cars with both air bags and safety belts and cars with only belts. The Safety Board, on the other hand, investigated

41 accidents involving air bag equipped cars. In those selected accidents, the air bag systems appeared to ameliorate occupant injuries. In that sense, the Safety Board's investigation finding are consistent with IIHS research.

AUTOMOBILE RESTRAINT SYSTEMS STUDY

Mr. PRICE. Last year, we talked a bit about a safety study that the Safety Board had underway on the crash performance of automobile restraint systems. NHTSA and others had some concerns about the methodology that was being used in the study. What is the status of the study and what are its findings?

[The information follows:]

The data review indicated that when passive restraint systems were properly used, they were effective in reducing upper torso and head injuries. Although higher levels of injury were noted in cases where passive restraints were improperly used or not used at all, we were unable to determine if those injuries were statistically representative of potential problems occurring nationwide. The Safety Board will summarize and compile the factual information on the accidents investigated and publish the material in a brief format report this year.

AUTOMOBILE RESTRAINT SYSTEMS

Mr. PRICE. In past years, we have talked about the terrible injuries that have occurred in automobiles equipped with automatic safety belts and manual lap belts, when the passenger does not fasten the manual lap belt. Are you seeing any more evidence of problems with these particular restraint systems and should they be prohibited in new vehicles?

[The information follows:]

As the Safety Board testified previously, in the automatic or passive restraint accidents investigated between 1990 and 1992, there were very traumatic injuries. Although we have not investigated any additional automatic or passive restraint-equipped car accidents since that time, Safety board investigators continue to hear about other similar cases, thus continuing to illustrate the importance of passengers fastening their manual lap belts.

Mr. PRICE. What more should NHTSA be doing to encourage drivers to use the manual lap belt in vehicles equipped with the automatic shoulder belt?

[The information follows:]

The encouragement of drivers or passengers to use the manual portion of their automatic restraint could be done through the media or informational processes if the emphasis is focused in that direction.

CHILD PASSENGER PROTECTION

Mr. PRICE. Should NHTSA be considering additional measures to promote the proper use of child safety seats for infants in air bag equipped vehicles?

[The information follows:]

The issue does not concern the proper use of the safety seat, but rather the force with which the air bag deploys. Although the National Transportation Safety Board is not aware of any actual accidents, we are aware of research showing that the force of the air bag upon deployment is so strong that it could injure a child in a rearward facing safety seat.

This issue should be addressed by the National Highway Traffic Safety Administration (NHTSA), since more vehicles with air bags will enter the marketplace each year and more infants will be placed at risk. The Board is aware that some research is underway by the automobile manufacturers that would permit a disconnection of the air bag sensor when an infant seat is in the front seat.

Mr. PRICE. The justifications indicate that the Safety Board may conduct a safety study regarding child passenger protection. What issues deserve further examination?

[The information follows:]

The National Transportation Safety Board's study on child occupant protection will study a number of issues related to the effectiveness of child safety seats and seat belts, including the comparative effectiveness of the different types of restraint systems for children. For example, do children receive similar levels of protection from child safety seats, booster seats, and lap/shoulder belts. In addition, the study will address, if and how, compatibility between vehicle seat belts and child safety seats affects the performance of the seats and the level of injury sustained. Further, comparisons will be made between injuries sustained by children in lap-only belts versus lap/shoulder belts. It is expected that the issue of compatibility between air bags and child safety seats will also be addressed in this study. This will be the first study to provide prospective accident investigation results on belt use for children.

TEENAGE DRIVERS BAC LAWS

Mr. PRICE. Last year, the Safety Board identified the issue of teenage drinking and driving as a major issue. Among other recommendations, your report called for tougher State laws concerning the possession and use of alcohol by minors; zero blood alcohol concentration standards for teenagers; and automatic license suspension for teenagers convicted of alcohol offenses. Now that a year has passed, what progress have the states made in addressing teenage drinking?

[The information follows:]

Five States—Arkansas, Minnesota, Nebraska, Tennessee, and Texas—and the District of Columbia enacted new low blood alcohol concentration laws for persons under age 21 in 1993. Also, California and New Mexico improved their laws to provide for a lower BAC (0.01 and 0.02, respectively) and extended low BAC law coverage to all drivers under 21. In 1994, Ohio retained its 0.02 BAC law, but extended coverage from drivers under 18 to drivers under 21. Bills have been proposed in at least 15 State legislatures in 1994. Bills in Virginia and South Dakota have passed both houses and await signature. Other States with active bills include Massachusetts, Florida, Delaware, Hawaii, Idaho, Michigan, Missouri, New York, Rhode Island, South Carolina, and West Virginia. Not all of the States with low BAC laws for youth include administrative license revocation. With regard to improvements in age 21 laws, 23 improvements in thirteen States have been identified subsequent to the Safety Board's report. The Board expects substantial progress in current and future State legislative sessions.

HIGHWAY ACCIDENTS RELATED TO ALCOHOL

Mr. PRICE. Secretary Pena has announced a goal of reducing the proportion of highway accidents related to alcohol to 43 percent by 1997. In addressing this goal, what relative emphasis should the Department be placing on reducing teenage drinking and driving, as compared to other priorities, such as getting repeat offenders off the road?

[The information follows:]

The Secretary of Transportation recently issued goals to increase the use of seatbelts from the current 66 percent use level to 75 percent belt use by the end of 1996. We believe that this is a reasonable goal. Usage rates have increased from the low teens a decade ago, to the current mid-sixties because educational efforts have reached the population most acceptant of the benefits of seatbelt use. Any increase in seatbelt use from this point on will be more difficult, and educational efforts should be aimed at the most difficult to reach violators.

ALCOHOL-RELATED HIGHWAY ACCIDENTS

Mr. PRICE. What relative emphasis should NHTSA be placing on public education efforts versus tougher law enforcement measures in its efforts to reduce alcohol related fatalities?

[The information follows:]

While the National Transportation Safety Board has no safety recommendations regarding the relative emphasis on public education, both the Safety Board and the National Highway Traffic Safety Administration (NHTSA) recognize that public information and prevention efforts are needed to complement and enhance the effect of both legislation and enforcement. Evidence to that effect was found in the Maryland 0.02 law for youth in which the law itself achieved a minimum 11 percent reduction in alcohol-related crashes for drivers under age 21. When combined with targeted public information in test counties, the alcohol-related crash reduction was nearly 50 percent. Clearly, both enforcement and public information are needed.

HEAVY TRUCK ACCIDENTS

Mr. PRICE. What are the trends regarding highway fatalities caused by truck accidents? What problem areas are you seeing in your investigations of truck accidents?

[The information follows:]

According to Trucks Involved in Fatal Accidents (TIFA) data compiled by the University of Michigan Transportation Research Institute, large truck combinations continue to be overrepresented in fatal accidents. Truck combinations are involved in about twice as many fatal accidents per 100 millions miles as passenger cars. However, fatality and injury rates for truck occupants have declined since 1975. In several recent run off the road truck combination accidents investigated, the Safety Board found that sleep deprivation, irregular work/rest cycles, and driving too fast for conditions may have been factors in these accidents.

Mr. PRICE. Driver shortages and driver turnover are significant problems in certain segments of the trucking industry, with annual turnover at 100 percent in some firms. What implications do you see in these trends with regard to truck safety?

[The information follows:]

The Safety Board has not investigated any recent heavy truck accidents where driver shortages and/or driver turnover problems were factors. However, the Board did investigate two Greyhound bus accidents where new driver inexperience were primary factors in these accidents.

HEAVY TRUCK ACCIDENTS

Mr. PRICE. It has been reported that truck accidents are underreported by as much as 40 percent. Moreover, the Transportation Research Board and others have recommended that the Department improve truck accident and travel data, especially as they relate to the reporting of nonfatal accidents, estimates of truck travel, and the identification of truck configurations. What progress has the Department made in addressing these concerns?

[The information follows:]

A suspected cause of underreporting was that until recently, the carriers themselves were required to report their own accidents to the Federal Highway Administration (FHWA). On March 4, 1994, the FHWA changed 49 CFR 390 and 394 to replace the existing reporting system with an electronic accident reporting system. The reports are now being submitted by law enforcement personnel, but not all States are currently participating in the new system. Although it is reasonable to expect that this change will reduce the underreporting problem, it is too early to determine if the new reporting program has done so. We recommend evaluating the program once it has been fully operational for two or more years to determine if further improvements are needed.

HEAVY TRUCK BRAKE DEFECTS

Mr. PRICE. Last year, the Safety Board completed a safety study which identified defective brakes as a key and often underreported cause of fatal accidents involving trucks and buses. What is the extent of the problem and what follow-up actions should FHWA and NHTSA be taking to address this issue?

[The information follows:]

The Safety Board found that brake deficiencies are not commonly reported as factors in many heavy vehicle accidents. Comprehensive vehicle inspections are only conducted when there is suspicion of a vehicle related problem, and normally are not conducted for non-fatal accidents. In several instability loss of control accidents investigated by local police agencies, speed too fast for conditions and weather were cited as factors. However, brake related deficiencies were not cited.

In response to the concern raised, the Federal Highway Administration recently changed 49 CFR 390 and 394 to replace the existing reporting system with a more comprehensive electronic accident reporting system. This change became effective March 1994. As such, it is too early to determine if the new reporting program will provide better identification of braking deficiencies in commercial vehicle accidents.

ANTILOCK BRAKING SYSTEMS

Mr. PRICE. The Safety Board has included in the "Most Wanted" list a recommendation that FHWA/NHTSA adopt a performance standard on antilock braking systems for newly manufactured vehicles with airbrake systems. What was the justification for adding this recommendation to your list of priority action items? What will be the expected safety payoffs?

[The information follows:]

When the "Most Wanted" safety recommendations program was initiated by the Board in the fall of 1990, a "Board Order" was developed to provide policy guidance and establish procedures for the identification, development, selection, and implementation of "Most Wanted" safety recommendations and issue areas.

Under that Board Order, a "Most Wanted" safety recommendation is defined as one which: Will impact/enhance safety on the national transportation level; has a high level of public visibility/interest: Completion of the recommended action will build a more positive or secure view of the transportation system in the eyes of the public; includes a consideration of: 1) previous loss of life/property, 2) potential for future loss of life/property, 3) coverage expected, i.e. exposure of the public to risk, 4) addressees' internal action process, i.e. priorities, congressional mandates, budgets, etc.; and can be implemented in a reasonable time period.

The Safety Board reviews the contents of the "Most Wanted" program list every six months and considers all recommendations issued since the last review, as well as changes in the status of previously issued recommendations as it contemplates modifications in the list.

The issue of commercial truck safety was a part of the original "Most Wanted" list adopted in October 1990. In the Spring of 1993, staff presented suggestions for modifications in the list. At that time, the Board added the issue described in safety recommendation H-92-54 to the Commercial Truck Safety issue areas because it met the criteria described in the Board Order, and the Board believed that the increased attention given by inclusion on the "Most Wanted" list would be beneficial in getting the recommendation implemented.

The payoffs expected at the requirement for antilock type brake systems on commercial trucks will be a reduction in the number and severity of truck braking related accidents, and a reduction of risk to the public who share the roadway systems with the commercial truck operators.

ANTILOCK BRAKING SYSTEMS

Mr. PRICE. NHTSA has announced a six-month delay in its schedule for issuing a final rule pertaining to antilock brakes for medium and heavy trucks. Does the Safety Board believe that NHTSA is making sufficient progress in addressing this issue?

[The information follows:]

Yes. Several industry comments have surfaced that should be addressed before the rulemaking process is finalized, and NHTSA needs time to evaluate the merits of those comments.

COMBINATION TRUCKS

Mr. PRICE. The General Accounting Office recently reported that insufficient data exists to ascertain the relative safety of longer combination vehicles as compared with other trucks. Does the Safety Board have any recommendations on how our data and information on LCVs might be improved?

[The information follows:]

No. Unfortunately none of the available data can be extrapolated to project the safety trends of longer combination vehicles.

HEAVY TRUCK ACCIDENTS RELATED TO SPEED

Mr. PRICE. What role does speeding play in truck accidents and what recommendations has the Safety Board made in this regard?

[The information follows:]

The National Transportation Safety Board has investigated a limited number of catastrophic heavy truck accidents. In those accidents, the Board noted that injury severity increased dramatically as vehicle speed increased. However, we are unaware of any studies that have confirmed this as being nationally representative for all heavy truck accidents.

RADAR DETECTORS

Mr. PRICE. In December, the Federal Highway Administration issued final regulations to implement a ban on the use of radar detectors in medium and heavy trucks. The regulations state that "there is no established direct linkage between radar detectors and highway accidents." Is that statement consistent with the Safety Board's findings?

[The information follows:]

We are not aware of any data that has established a correlation between radar detectors and highway accidents.

Mr. PRICE. Does the Safety Board support this regulation?

[The information follows:]

Although we do not have a formal position, the Safety Board believes there is no legitimate use for radar detectors in commercial vehicle operation.

BELTWAY SAFETY INITIATIVE

Mr. PRICE. The Federal Highway Administration recently issued its Beltway Safety Initiative which is focused on improving safety on the I-495 beltway around Washington, D.C. One of the recommendations made was that commercial truck drivers and shippers should be held mutually responsible, including payment of fines, if the truck driver is convicted of speeding while trying to make an unrealistic delivery schedule. Does the Safety Board have an opinion on the efficacy and feasibility of such a recommendation?

[The information follows:]

The National Transportation Safety Board participated in and endorses the Beltway Safety Initiative, but we have not taken a formal position on the recommendation.

AVIATION ACCIDENT STATISTICS

Mr. PRICE. The Safety Board has reported continuing improvement in fatal accident rates for both the major scheduled airlines and general aviation. In 1993, there were no passenger fatalities for the major U.S. scheduled airlines; charter airlines experienced their fourth consecutive year without a fatality; and general aviation registered 715 fatalities, a historic low. Do these numbers indicate that the FAA is doing a good job in its aviation inspections and surveillance?

[The information follows:]

The Safety Board is encouraged by the long-term, continual improvement in aviation safety statistics. There was a particularly safe year in 1993 with respect to passenger fatalities in air carrier aircraft—the only major fatal accident was the Jetstream 31 in Hibbing, Minnesota on December 1. We believe that the overall safety improvement reflects the willingness of the entire aviation industry, including the Federal Aviation Administration (FAA), to address safety problems as they have been identified throughout the past 20 years. Major efforts have been made to reduce the risk of accidents such as midair collisions, windshear and winter operations. The newer generation airplanes are more reliable. Additionally, most major carriers have improved their training programs and now include crew resource management. We believe that, in general, the FAA is doing a good job in its inspection and surveillance activities. We have noted the need for a higher level of surveillance in some specific areas such as sightseeing operations in the Grand Canyon and Hawaii and we believe FAA is addressing that need.

AIR TRAFFIC CONTROL CORPORATION

Mr. PRICE. The Department of Transportation plans to submit legislation to establish a public corporation to run the Nation's air traffic control system. Of course, we have not yet seen the details of the proposal, but one scenario might be that the FAA would retain policymaking responsibility for safety issues, while the public corporation would be responsible for safety implementation.

Does the Safety Board have a position on the concept of establishing a new entity to manage air traffic control, particularly regarding its safety implications?

[The information follows:]

The Safety Board has not developed a position regarding the establishment of an independent corporation to run the nation's air traffic control system.

Mr. PRICE. Based on your investigative work, do you see any problems in the FAA's management of safety issues that might be better addressed through a public air traffic control corporation?

[The information follows:]

The Safety Board believes that the Federal Aviation Administration must be supported and fully funded in order to meet its goals for modernization of the air traffic control system. The procurement, research and development, and implementation process should be reviewed and streamlined. However, we do not know if that could be accomplished more effectively by a public air traffic control corporation.

WAKE VORTEX RELATED ACCIDENTS

Mr. PRICE. Safety Board data indicate that between 1983 and 1993 there have been more than 50 accidents and incidents which resulted from probable encounters with wake vortices of leading aircraft. In these encounters, 27 people were killed, eight were seriously injured, and 40 airplanes were substantially damaged or destroyed. You have had a special investigation underway to look into

the causes of these accidents. Have you reached any findings at this time?

[The information follows:]

The Safety Board determined that the Boeing 757 airplane does not generate wake vortices that are uncharacteristic for its weight. The primary problems with encountering Boeing 757 wake vortices is that the separation distances for airplanes following the Boeing 757 are inadequate, air traffic control procedures may result in inadequate separations, pilots are insufficiently trained to avoid wake vortices, and pilot techniques have not been developed to aid in avoiding wake vortices.

The Safety Board recommended changing the weight classifications and separation distances to achieve greater separation between the heavier and lighter airplanes in the large airplane category; altering air traffic control procedures to reduce the exposure to operating visually behind larger airplanes at reduced separation distances, developing techniques to be used by pilots to determine their separation distance from leading airplanes and their position relative to the wake; improving pilot training through improved techniques, training aids and recurrent training; and continuing research to increase airport capacity through better understanding of wake vortex characteristics.

Mr. PRICE. We often hear from the airlines that the FAA is allowing too much separation between their aircraft, thereby reducing capacity and raising costs to the airlines. Does your study into wake vortex accidents lead you to believe that current ATC procedures sometimes result in aircraft following too closely?

[The information follows:]

The National Transportation Safety Board believes that separation distances may be safely reduced under certain circumstances. However, several recent accidents show that smaller airplanes are following too close behind larger airplanes. In addition, controller procedures can result in airplanes following too close when the following pilot receives a visual approach clearance.

WAKE VORTEX AND VISUAL FLIGHT CONDITIONS

Mr. PRICE. Some in the aviation industry envision a day when air traffic controllers will become "flow managers," and the pilots themselves will handle most of the minute-by-minute decisions regarding routing and control of their aircraft. This might be possible if data could be provided direct to the cockpit through implementation of new technologies such as GPS, digital radar, and digital communications. Do pilots currently have enough information on wake vortices to maintain adequate separation distances under visual flight conditions, and if not, what additional information is needed?

[The information follows:]

The National Transportation Safety Board has found that pilots can have difficulty in judging the distance from their own airplane to the leading airplane. In addition, the pilot does not know the exact flight paths of a preceding airplane or his own airplane. Therefore, a pilot cannot be assured of maintaining an adequate separation distance nor can he be assured of remaining above the flight path and wake of a preceding airplane. Controllers may be able to provide separation distances upon request.

Pilots would need interactive systems, such as on-board radar or TCAS, to provide range information. However, the relative flight paths and the exact position of a wake vortex cannot be accurately determined without expanding the capabilities of planned technology.

WAKE VORTEX SAFETY PROBLEMS

Mr. PRICE. Should the FAA be doing additional research into the safety problems of wake vortices?

[The information follows:]

Recently, the National Transportation Safety Board made numerous recommendations related to wake vortex safety. One recommendation was for the Federal Aviation Administration (FAA) to continue to sponsor research and development projects that may lead to technological or procedural solutions to reduce the hazards posed by wake vortices. Another recommendation to the FAA was to determine if TCAS could be developed to provide separation distance information during visual approaches.

AIR TRAFFIC CONTROL PROCEDURES

Mr. PRICE. Current air traffic procedures require controllers and pilots to adhere to a standard set of terms and phrases when communicating in order to ensure mutual understanding of what actions are being taken. At a recent aviation safety conference, a researcher from the NASA Ames Research Center stated that incidence of pilots and controllers taking shortcuts in required phraseology due to high work load and carelessness is a significant problem affecting air safety. Does your investigative work indicate this is a problem?

[The information follows:]

Yes, it is a problem, as are readback/hearback errors also a problem. The Safety Board believes that given the volume and pace of controller/pilot communications it is not practical to eliminate all such errors, especially during peak traffic periods. However, more rigorous adherence to standard phraseology and redundancies would reduce those errors. Additionally, airground data link technology is being used increasingly both to reduce radio frequency congestion and errors.

COMMUTER AIRCRAFT OVERSIGHT

Mr. PRICE. Two of the major commuter accidents that you have investigated recently involved the same company, GP Express. The Safety Board's report in the GP Express accident in Shelton, Nebraska, indicates that "GP Express failed in its obligation to communicate the message of safety, and did not establish an environment in which dedication to safety overrode all other concerns." In that accident, the pilot was performing unauthorized aerobatic maneuvers.

Your report last year on the GP Express accident in Anniston, Alabama, cited the management of the company for failing to provide adequate training and operational support for the company's Southern operation. Is the FAA exercising appropriate oversight over this and other commuter air carriers?

[The information follows:]

The Safety Board evaluated the level of Federal Aviation Administration (FAA) oversight of GP Express following the accident in Anniston, Alabama on June 8, 1992 and again following the training accident in Shelton, Nebraska on April 28, 1993. In both cases, we found that FAA's surveillance activities were consistent with or perhaps even more intense than those applied to other regional carriers. Nevertheless, the Board expressed the belief that the FAA might have foreseen the need to give more attention to the carrier's programs because of the frequent turnover in the GP Express management structure and their expansion into the southern operation.

COMMUTER AIRLINE INVESTIGATIONS

Mr. PRICE. Are there any other common threads that you are seeing in your investigations of commuter airline incidents?

[The information follows:]

Three of the commuter airline accidents investigated by the Safety Board since the beginning of 1992 resulted when airworthy airplanes were flown into the ground

because of operational factors. These involved issues that have been addressed by the Board for the last 10 years, that is, pilot situational awareness, pilot experience and training, the pairing of inexperienced crewmembers, and company oversight of flight operations. Although the Federal Aviation Administration is taking action to address some of these issues, it will be a while before the actions are effective.

COMMUTER AIRLINE SAFETY RECOMMENDATIONS

Mr. PRICE. What major regulatory actions are in progress that may improve commuter safety? What further actions do you recommend?

[The information follows:]

After three accidents in the mid 1980's involving commuter airplanes, the Safety Board recommended that Ground Proximity Warning Systems (GPWS) be required on turbine powered commuter airplanes. The Board subsequently listed this recommendation on its "Most Wanted" list of safety issues. The Federal Aviation Administration (FAA) acted, albeit slowly, and the final rule to require GPWS on turbine powered airplane with ten passengers or more became effective on April 20, 1992. The rule allowed two years before compliance was required and most operators delayed the installation until the approaching deadline. By April 20 of this year the equipment will be required and we believe that it will have a significant effect on prevention of commuter accidents.

We have also been advised by FAA that the issuance of a Notice of Proposed Rulemaking to require that Part 121 operators provide cockpit resource management training to flight crews is imminent. The Board has been told that the proposed rule will also address Part 135 operators -- requiring those that conduct scheduled passenger service in airplanes carrying ten or more passengers to comply with the same pilot qualification and training requirements that apply to the Part 121 major air carriers.

The Safety Board believes that this rulemaking has industry support and will be a positive step in eliminating the disparity between the commuters and major air carriers.

Another issue that has been addressed by the Safety Board in the aftermath of Part 121 and Part 135 accidents is that of the pairing of relatively inexperienced crewmembers. The Board has been advised that a final rule is in the clearance process and may be issued shortly. Although the rule will initially apply to Part 121 carriers, it will ultimately apply to Part 135 carriers when the training requirement for the two parts are merged in the new rulemaking.

Other safety measures that should have a positive effect on future commuter airline safety include the planned installation of TCAS and the FAA's recent rulemaking to require that those carriers that operate in winter conditions have a formal deicing plan similar to those of the major carriers.

Although it has not been a factor in recent accidents, the Safety Board is pleased that FAA is also addressing the improvement of occupant protection standards for commuter category airplanes. On July 14, 1993, the FAA issued a notice of proposed rulemaking that would modify emergency landing design criteria, require dynamic testing of seats and restraint systems, and upgrade flammability standards of newly manufactured commuter category airplanes that will provide a level of safety commensurate with transport category airplanes. The Safety Board believes that some of the improvements -- such as fire blocking seat cushions -- could and should be required in existing as well as new airplanes, and we will continue to address this issue.

COLUMBUS, OHIO, AVIATION ACCIDENT

Mr. PRICE. What issues are you investigating in the January 6, 1994, crash of the United Express Flight 6291 in Columbus, Ohio? [The information follows:]

The safety issues being examined during the investigation of the United Express Flight 6291 accident at Columbus, Ohio, on January 6, 1994, include pilot procedures and training, cockpit crew coordination, airline management and FAA oversight, and aircraft performance in conditions conducive to airframe icing. The Jetstream 41 is a relatively new modern "glass cockpit" airplane with an autopilot installed. There are no flight simulators available for pilot training, so the pilots are trained in the airplane. Both pilots had recently transitioned from the less sophisticated Jetstream 3100 with conventional displays and no autopilot. The safety issues in this accident are also being examined as part of the Safety Board's recently initiated Safety Study of Part 135 Commuter Airlines.

FLIGHT CREW PERFORMANCE STUDY

Mr. PRICE. According to press reports, flight crew performance, as well as icy conditions, may have contributed to the tragic crash last year in Hibbing, Minnesota, of a Northwest Express commuter plane which killed 18 persons. The pilot of the aircraft reportedly had failed pilot proficiency exams in 1988, 1992, and 1993 and was abusive to his copilots and colleagues. This suggests that his copilots may have been reluctant to challenge the pilot if he made a mistake or used poor judgement. The failure of the first officer to monitor and challenge the captain's decisions is an issue that you examined in your safety study on flight crew performance. Would you elaborate on the findings of your safety study? Are you able to comment on this aspect of your investigation of the Hibbing accident?

[The information follows:]

At about 8:00 p.m. on December 1, 1993, a Jetstream 31 aircraft being operated by Express II Airlines was approaching the Hibbing, Minnesota, airport on a flight from Minneapolis. The airplane was about three miles from the runway touchdown zone on a localizer back course approach when it crashed into a hill, killing all 18 persons on board. This was the worst accident in terms of loss of life in a scheduled commuter aircraft since the crash of an Atlantic Southeast Embraer 120 in Brunswick, Georgia in 1991.

The Safety Board's investigation of this accident is active and far from complete. While it is too soon to be conclusive, evidence suggests that crew performance issues are central to this accident. Radar information indicates that the airplane entered a steep descent in its approach to the airport, with a descent rate as high as 3000 feet per minute, in excess of company specifications.

Crew performance issues were the focus of the Safety Study recently completed by the Safety Board (Safety Study: A Review of Flightcrew-Involved, Major Accidents of U.S. Air Carriers, 1978 through 1990. NTSB/SS-94-01). The study reviewed all 37 major carrier accidents that occurred in the United States from 1978 through 1990. In its review, the Board examined specific instances in which one member of the flightcrew failed to monitor or challenge an error made by another member of the flightcrew. This monitoring/challenging type of error accounted for 70 (23 percent) of the 302 specific errors made by flightcrews during the 37 accidents. The monitoring/challenging errors occurred in 31 of the 37 accidents. The most common pattern in the accidents (found in 17 accident) was a tactical decision error made by the captain, who was also the flying pilot, followed by a non-flying first officer's failure to monitor or challenge that decision error.

Many observations from this study appear to be relevant to the accident at Hibbing. For example, the most common type of error found by the Safety Board was one in which the captain was the flying pilot, the captain made a tactical decision error, and the first officer failed to challenge the captain's bad decision. Often, the first officer was inexperienced. These factors were often present in several accidents that involved an unstabilized approach, factors that appear relevant to the Hibbing accident.

The first officer, who was new and still on probation, did not call out the excessive rate of descent as required. He did not make all required altitude calls.

Safety Board investigators found that the captain had a history of intimidating first officers. His poor crew coordination had been cited as a reason in his failure of two check rides and mentioned in his previous training as captain.

The Safety Board will consider these and other relevant issues when it examines the evidence collected in this investigation.

Mr. PRICE. Your safety study focused on 37 major air carrier accidents that occurred between 1978 and 1990. Is this a large enough sample from which one can draw appropriate conclusions?

[The information follows:]

The 37 cases evaluated in the study were not selected to comprise a representative sample of all air carrier flights or of any other subset of flights. Rather, these 37 accidents were the entire census of flights sharing the characteristics of major, flightcrew-involved, Part 121 air carrier accidents between 1978 and 1990. Consistent with this set of data, the study characterized this particular group of accidents and the errors made by flightcrews during them. The Board did not attempt to generalize these results to other populations of cases.

Mr. PRICE. What were some of the other conclusions you reached as a result of the study?

[The information follows:]

In addition to the role of monitoring/challenging errors, the Safety Board made several other findings as a result of the study. In more than 80 percent of the 37 accidents, the captain was performing the flying pilot role, while the first officer was serving as the non-flying pilot. Errors made during the taxi phase of operation were causal in 8 of the 10 accidents that occurred during takeoff; and 6 of the 10 takeoff accidents involved inadequate performance of checklists during the preceding taxi operation.

In three separate comparisons with illustrative samples of non-accident flights, larger percentages of the accident flights (for which data were available) were running late, were the first duty day together for the captain and first officer, or were the first flight leg together for the captain and first officer.

The accident crewmembers who had been awake for a relatively long period of time made more errors per accident, more tactical decision errors per accident, and more procedural errors per accident.

Of the first officers for whom data were available, a majority had accumulated less than 500 hours as first officers in the accident-involved aircraft type while employed at that air carrier, and a majority had served as a first officer at that air carrier for less than one year.

Overall, the Board concluded that the data analyzed in the study suggested the need for mandatory, comprehensive crew resource management (CRM) training; and for CRM-oriented the line operational simulation training and initial operating experience structured for the attainment of specific educational objectives.

JETSTREAM 31 AIRCRAFT

Mr. PRICE. I understand that the aircraft involved in the Hibbing, Minnesota, crash, a Jetstream 31, may have been determined to be a poor performer in icing conditions as early as in 1989. Is that the case? Has the Safety Board previously recommended that the FAA or manufacturers evaluate the in-flight performance of this type of aircraft under icing conditions? If so, what has been their response?

[The information follows:]

On January 30, 1991, a British Aerospace Jetstream BA-3101 airplane, crashed on its final approach to runway 19 at Beckley Airport, West Virginia. As a result of this accident the Federal Aviation Administration (FAA), on April 2, 1991, issued Airworthiness Directive (AD) 91-08-01 directed to the Jetstream 3101 airplanes which do not have a 35 degree flap setting capability. The AD became effective on June 10, 1991, and states "Do not extend the flaps beyond the 20 degree position if any ice is visible on the airplane . . ." This action increase the tailplane stall margin on the Jetstream 3101. The 20 degree landing flap setting provides an acceptable safety margin for operating in icing conditions.

On July 22, 1992, the Safety Board issued safety recommendation A-92-62. In answer to this safety recommendation the FAA issued airworthiness directive (AD) 93-01-02, effective January 22, 1993, which addresses actions taken by British Aerospace and the FAA to correct a potentially unsafe condition of the tailplane deicing system design. This AD increases the reliability of tailplane deicing system performance.

ICING CONDITIONS BULLETIN

Mr. PRICE. In October 1993, the FAA issued Air Carrier Operations Bulletin 9-93-4, "Flight in Potential Icing Conditions and the Avoidance, Recognition, and Response to Tailplane Ice." What is the Safety Board's view of the adequacy of this bulletin in addressing potential in-flight icing conditions, and what evidence is there that the carrier involved in the Hibbing crash followed FAA-recommended procedures?

[The information follows:]

The contents of ACOB 8-93-4, Flight in Potential Icing Conditions and the Avoidance, Recognition, and Response to Tailplane Ice, incorporated directives to Principle Operations Inspectors (POI) that was very responsive to four Safety Board safety recommendations (A-91-122, A-92-59, A-92-69, and A-92-61). In general, the ACOB directed POI's to examine the training and operations programs of air carriers under their purview to ensure certain procedures regarding flight in potential icing conditions were in place. However, during the Safety Board's investigation of the Express II Airlines accident at Hibbing, Minnesota, on December 1, 1993, and the Atlantic Coast Airlines accident at Columbus, Ohio, on January 6, 1994, we learned that the actions directed in ACOB-8-93-4 had not been taken. Our investigators interviewed the POI's for both airlines, as well as the POI for Express I, the sister airline of Express II, and determined that they had not complied with the actions specified in the ACOB.

The Safety Board is currently evaluating additional safety recommendations to the FAA that would urge an in-depth examination of the FAA's ACOB program and would prompt a verification that actions intended to be taken as the result of the issuance of an ACOB are actually taken. This would include the actions urged in ACOB 8-93-4. The Safety Board's action of this subject should be completed in the very near future.

The Safety Board believes that Air Carrier Operations Bulletin 8-93-4 provided sufficient guidance to the inspectors and referenced excellent training material. Staff has found that several airlines, including the one involved in the Hibbing accident, are not sufficiently aware of the information in the ACOB. The matter is currently under investigation.

COMMUTER AIRCRAFT DEICING PROCEDURES

Mr. PRICE. The FAA issued an interim final rule, effective December 15, regarding ground deicing procedures for regional aircraft. Did the Safety Board comment on this rulemaking? If so, what were your comments and concerns with the rulemaking?

[The information follows:]

A proposed rule was published in the Federal Register regarding ground deicing procedures for commuter aircraft on September 21, 1993. The Safety Board did not provide comments on the proposed final rule because it sufficiently covered the issues regarding ground deicing procedures for regional aircraft.

FAA AIRCRAFT DEICING ACTIONS

Mr. PRICE. What other actions has the FAA and the airline industry taken to respond to the Safety Board's recommendations regarding the inspection and deicing of aircraft for ground icing, following the Board's investigation of March 1992 crash of the US Air flight at LaGuardia?

[The information follows:]

In response to the Safety Board's safety recommendations, the Federal Aviation Administration (FAA) has encouraged ATC facilities, airport operators, and users to implement local deicing plans including gate hold procedures when necessary when icing conditions exist. Air traffic control facilities have been instructed to communicate departure rates and any other pertinent information to the airport users and operators before, during, and after deicing operations. This information is subsequently disseminated to the flightcrews by their company as specified in their man-

dated airline-specific deicing/anti-icing programs. The FAA published Advisory Circular 121-XX, Ground Deicing and Anti-Icing program, in the Federal Register. The proposed AC will address the wing contamination issues and include information on the type of deicing fluid and mixture used and the available holdover time. The National Weather Service is conducting a research study on moisture accumulation rate and the FAA will review the results of this study as well as other available research information on this subject to establish a way to inform flightcrew of the type of fluid and mixture used, the current moisture accumulation rate, and the available holdover time.

Further, the FAA sent letters to the appropriate certificated airports requesting that they arrange meetings with the air carriers, air traffic control personnel, and airport users to assess the impact of the air carrier's deicing activities on airport operations. The letter also asked that the parties identify action that can be taken to maximize the effectiveness and efficiency of operations during periods of ice or snow. This information will be included as a revision to Advisory Circular 150/5200-30A, "Airport Winter Safety and Operations."

FAA AIRCRAFT ACCIDENT

Mr. PRICE. After the October 1993 crash near Front Royal, Virginia, of an FAA-owned and operated plane, which killed all three FAA employees aboard, the Safety Board criticized the FAA for failing to establish flight procedures for its own aircraft that are equivalent to those the FAA requires of the larger aviation industry. The Safety Board issued several urgent safety recommendations in November 1993, urging the FAA to take immediate action.

[The information follows:]

As the result of the investigation of the Federal Aviation Administration (FAA) owned and operated airplane accident near Front Royal, Virginia, in October, the Safety Board issued one urgent action and seven priority action safety recommendations. The urgent safety recommendation pertained to requiring the pilots of FAA aircraft to file a flight plan when ever possible and to activate IFR flight plans before departure, whenever feasible. The other safety recommendations primarily pertained to organizational deficiencies noted by the Safety Board during its investigation.

On January 31, 1994, the FAA responded that it had instituted changes to its flight operations manuals to comply with the urgent safety recommendation. The FAA's response also stated that it agreed with the thrust of the other safety recommendations and several projects had already been undertaken, or were in the process of being developed, to comply with the recommendations. The Safety Board's final report of this accident has not yet been completed and the formal evaluation of the FAA's response to the safety recommendations has not yet been completed.

FAA FLIGHT SAFETY PROCEDURES

Mr. PRICE. Would you brief us on the deficiencies you found in FAA's internal flight safety procedures?

[The information follows:]

In general, the interim safety recommendation (A-93-161 through 168) issued by the Safety Board regarding the accident involving the FAA airplane near Front Royal addressed both flightcrew operational procedures and supervisory and management oversight matters. The pilot-in-command of the flight had exhibited poor airmanship and judgment on several previous occasions and FAA management had failed to take the appropriate remedial actions.

The FAA had identified several deficiencies in its flight operations departments during previous inspections and studies of its operations; however, it had failed to act on the safety recommendations that resulted. The intention of the FAA, as stated in earlier documents, was to operate its aircraft similar to a Part 135 airline. However, those actions were not implemented before the accident. The Safety Board's safety recommendations urged adoption of the FAA's own recommendations.

The FAA's response to these safety recommendations reflects agreement with the Safety Board and we are aware of several actions that have been taken already, including changes in management personnel and organizational changes. The final report of this accident will contain additional safety recommendations regarding the organizational deficiencies noted during the investigation.

Mr. PRICE. The FAA announced last month that it would undertake immediate improvements in its operations. Have you evaluated what the FAA has actually done to date versus what it intends to do?

[The information follows:]

In the January 31, 1994, letter from the Federal Aviation Administration (FAA) to the Safety Board, the FAA agreed with the safety recommendations that were issued for the FAA airplane accident near Front Royal. The Safety Board has not formally evaluated the FAA actions; however, we are aware that several positive steps have already been taken and others are in progress. The formal evaluation will be made in the near future.

GENERAL AVIATION MOUNTAINOUS FLYING

Mr. PRICE. In a December 1993 report, the GAO found that the general aviation accident rate was nearly 40 percent higher in mountainous Western States than for all other States in the continental United States. The GAO made several recommendations to improve the safety of flying in mountainous areas. Do you agree that the FAA could be doing more to improve general aviation flying in mountainous States?

[The information follows:]

Yes. It is our opinion that the FAA could improve the safety level of general aviation flying by using seasonal education programs through their Accident Prevention Specialists. Each year as the temperatures rise pilots need to be reminded of the effects of high density altitude on the performance of their aircraft. This is the type of educational information that would help improve safety in general aviation mountainous terrain flying

Mr. PRICE. Have you made any specific recommendations to the FAA in this area over the past few years?

[The information follows:]

No specific recommendations have been made to the FAA.

GENERAL AVIATION COLLISION AVOIDANCE SYSTEM

Mr. PRICE. As a result of the September 1992 mid air collision between a Mitsubishi and Piper aircraft near Greenwood, Indiana, the Safety Board again recommended that the FAA expedite the development, certification, and production of various low-cost proximity warning and conflict detection systems for general aviation aircraft. What is the status of technological developments that might result in a low-cost collision avoidance system for general aviation?

[The information follows:]

The Safety Board has not received a reply from the Federal Aviation Administration (FAA) concerning this recommendation. However, we have learned informally that progress on the operational testing of the traffic alert and collision avoidance system (TCAS) has been delayed. We understand that, as a result, the FAA plans to revise the February 5, 1995 date, after which installation of this equipment would have been required in a broad category of commuter aircraft. We expect that this delay will result in a corresponding deferral of the availability of a low-cost system for the general aviation community.

Mr. PRICE. The Safety Board has classified the FAA's response to this recommendation as "Open-Unacceptable Response." What specific actions do you believe the FAA should take to expedite developments in this regard?

[The information follows:]

Prior to the 1992 accident, the Safety Board in 1988 urged the Federal Aviation Administration (FAA) to expedite the development of such a system for use in general aviation aircraft. The Safety Board had in mind a system which would be simple, affordable, and available to light general aviation aircraft within two to three years.

The FAA advised the Board on May 25, 1993, of a passive TCAS system being developed by BF Goodrich for the Navy that would provide a low cost system for the general aviation market. Since the 1988 recommendation asking FAA to expedite the system, six years have passed without system certification.

In adopting the report on the Greenwood, Indiana, midair collision, the Safety Board consequently noted the lack of the system's certification and reiterated the original safety recommendation to the FAA in a November 1993 letter.

JAPAN AIRLINES—ANCHORAGE, ALASKA, ACCIDENT

Mr. PRICE. In October 1993, the Safety Board concluded that probable cause of the March 31 incident in which an engine fell off a Japan Airlines flight from Anchorage, Alaska, was the aircraft's encounter with extreme turbulence. Would you tell us what your recommendations were as a result of this accident, which involved a Boeing 747? What the responses of Boeing and the FAA?

[The information follows:]

On November 15, 1993, the Safety Board issued seven new safety recommendations and reiterated a 1992 safety recommendation to the Federal Aviation Administration regarding the March 31, 1993, Japan Airlines, Inc. accident. No safety recommendations were issued to Boeing. The safety recommendations issued to the FAA are below.

Develop and implement a meteorological program to observe, document, and analyze potential meteorological aircraft hazards in the area of Anchorage International Airport, Anchorage, Alaska, with an emphasis on the approach and departure paths of the airport. (Class II, Priority Action) (A-93-126)

Amend the design load requirements of 14 CFR Part 25 to consider multiple axis loads encountered during severe turbulence. (Class II, Longer Term Action) (A-93-137)

Require the Boeing-proposed Boeing 747 engine pylon structural modification program to include increasing the lateral load capability of the pylon structure. (Class II, Priority Action) (A-93-138)

Require any future structural modifications of existing engine pylons to consider multiple axis loading. (Class II, Priority Action) (A-93-139)

Issue an Airworthiness Directive to require compliance with Boeing Service Bulletin 747-54-2160. (Class II, Priority Action) (A-93-140)

Consider the necessity and feasibility of requiring the modification of the aircraft departure routes at Anchorage International Airport during periods of moderate or severe turbulence to minimize the potential of aircraft encountering mountain-induced low level turbulence. (Class II, Priority Action) (A-93-141)

Additionally, the Safety Board reiterated safety recommendation A-92-58.

Develop a broader meteorological aircraft hazard program to include other airports in or near mountainous terrain, based on the results obtained in the Colorado Springs, Colorado, area.

The Federal Aviation Administration responded to A-93-136 through - 141 on letter February 24, 1994, a copy of which is below. The Safety Board has not had an opportunity to review and analyze the response.



U.S. Department
of Transportation

Federal Aviation
Administration

Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

FEB 24 1994

The Honorable Carl W. Vogt
Chairman, National Transportation
Safety Board
490 L'Enfant Plaza East, SW.
Washington, DC 20594

Dear Mr. Chairman:

This is in response to Safety Recommendations A-93-136 through -141 issued by the Board on November 15, 1993. These safety recommendations were issued as a result of the Board's investigation of an accident on March 31, 1993, involving Japan Airlines, Inc., Flight 46E (JAL46E), a Boeing 747-121. Shortly after departure from Anchorage International Airport, Anchorage, Alaska, the No. 2 engine and engine pylon separated from the airplane. The airplane had been wet-leased from Evergreen International Airlines, Inc. The flight was a scheduled cargo flight from Anchorage to Chicago O'Hare International Airport, Chicago, Illinois. On board the airplane were the captain, the first officer, the second officer, and two nonrevenue company employees. The airplane was substantially damaged during the separation of the engine. No one on board the airplane or on the ground was injured.

A-93-136. Develop and implement a meteorological program to observe, document, and analyze potential meteorological aircraft hazards in the area of Anchorage International Airport, Anchorage, Alaska, with an emphasis on the approach and departure paths of the airport.

FAA Comment. The Federal Aviation Administration (FAA) does not believe that a meteorological program as described by this safety recommendation is necessary at this time. The FAA has a meteorological research program under way at Colorado Springs, Colorado, in conjunction with the National Oceanic and Atmospheric Administration's Forecast Systems Laboratory. This study is a result of an earlier recommendation by the Safety Board and should establish a satisfactory basis to supplement existing data about the orographic turbulence created by strong winds with a flow pattern that is aligned with obstructing and channeling terrain.

The decision not to conduct an additional meteorological research program at Anchorage was also influenced by the facts of the accident. The crew of the accident aircraft had received a forecast of severe turbulence on takeoff from Anchorage and had received pilot reports of severe turbulence from other crews. Additionally, during taxi to takeoff the crew was informed by the local controller of a severe turbulence report from a company B-747 crew who had just experienced the condition on initial climb out from Anchorage. Furthermore, the Safety Board's meteorological investigation of the conditions around Anchorage indicated an extensive body of knowledge about mountain wave and mechanical turbulence and their effect on flight paths near the airport.

I plan no further specific action in response to this safety recommendation at this time, and I recommend that the Board classify this issue as "closed."

A-93-137. Amend the design load requirements of 14 CFR Part 25 to consider multiple axis loads encountered during severe turbulence.

FAA Comment. The FAA, in cooperation with the European Joint Airworthiness Authority and under the direction of the Aviation Rulemaking Advisory Committee, has developed a proposal to amend the airworthiness provisions of 14 CFR Part 25 to include a criterion for tuned discrete gust. This criterion will use more recent measurements of gust velocity and will require the gust gradient to be tuned to develop the maximum dynamic response in the structure. It is anticipated that this rulemaking action will be published during the third quarter of fiscal year 1994.

Additionally, the FAA's Technical Center is engaged in a research program designed to improve the knowledge of the gust environment. The program, entitled "Measurements and Analysis of Flight Loads for Transport Airplanes," calls for the instrumentation of in-service transport aircraft with state-of-the-art data acquisition equipment to acquire new loads data for the design of future generations of large transport airplanes. Of particular interest in this program is the measured gust velocities at lower altitudes in the vicinity of airports. The FAA believes that the new tuned gust criterion will result in structural designs which will be capable of withstanding the multiple axis loads encountered during severe turbulence.

I will keep the Board apprised of the FAA's progress on this safety recommendation.

A-93-138. Require the Boeing-proposed B-747 engine pylon structural modification program to include increasing the lateral load capability of the pylon structure.

FAA Comment. The FAA agrees with the intent of this safety recommendation and is discussing this issue with Boeing. As part of the Boeing-proposed structural modification program, the FAA has completely reevaluated the design, fatigue, and fail-safe loads of the Boeing Model 747 series engine pylon. The FAA also conducted flight tests which showed an increased lateral response of the inboard strut to a vertical gust. The resultant higher lateral inertia loads under this condition will be considered while modifying the structural design of the Boeing Model 747 strut.

The dual links of the modified Boeing Model 747 strut are designed to carry significant loads only when a primary structural element of the wing-to-strut attachment structure has failed. With such a failure, the dual links provide an alternate load path enabling the remaining structure to carry full fail-safe loads. Unmodified struts do not have this capability.

The thickness of the mid-spar fitting lugs will be increased on earlier Boeing Model 747 series aircraft as part of the modification to improve lateral strength and fail-safe capability. The modified strut will incorporate changes to the strut box that provide lateral strength. The thickness of the strut lower spar web on early Boeing Model 747 aircraft powered with JT9D engines was significantly increased on the Boeing Model 747-400 aircraft. As part of the strut modification program, the web thickness on these earlier airplanes will be increased and the web will be backed up with a channel. Additionally, lateral strength of the aft mid-spar web will also be increased. This web, which is aluminum on Boeing Model 747 aircraft powered with JT9D and CF6 engines, will be changed to steel and backed up with a steel strap in the modified strut.

I will keep the Board apprised of the FAA's progress on this safety recommendation.

A-93-139. Require any future structural modifications of existing engine pylons to consider multiple axis loading.

FAA Comment. I believe that the action being taken to address Safety Recommendation A-93-137 will result in structural designs which will be capable of withstanding the multiple axis load.

I will keep the Board apprised of the FAA's progress on this safety issue.

A-93-140. Issue an Airworthiness Directive to require compliance with Boeing Service Bulletin 747-54-2160.

FAA Comment. The FAA agrees with the intent of this safety recommendation and is considering the issuance of a notice of proposed rulemaking to address this issue.

I will provide the Board with a copy of any document that may be issued.

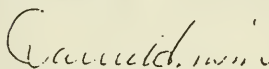
A-93-141. Consider the necessity and feasibility of requiring the modification of the aircraft departure routes at Anchorage International Airport during periods of moderate or severe turbulence to minimize the potential of aircraft encountering mountain-induced low level turbulence.

FAA Comment. The FAA reviewed this safety recommendation and determined that modification of the standard instrument departures from runways 6L and 6R is not feasible due to the limited amount of airspace available, the close proximity of two other airports, terrain clearance climb criteria, and noise compatibility. The existing procedures take all of these factors into consideration.

Prior to this accident, the National Weather Service had issued a forecast for severe turbulence along the mountains in the Anchorage area. Subsequently, numerous aircraft had reported severe turbulence along the base of the mountains east of Anchorage International Airport. A company sistership of JAL46E departed the same runway 10 minutes earlier and reported severe turbulence. The advertised departure runway in use at the time was runway 32. The crew of JAL46E specifically requested runway 6R and was advised of the turbulence forecast and the supporting pilot reports. It appears that runway 6R (which is 400 feet longer than runway 32) was requested because of the aircraft weight.

I consider the FAA's action to be completed, and I plan no further action on this safety recommendation.

Sincerely,



David R. Hinson
Administrator

ZWINGLE, IOWA, SAFETY RECOMMENDATIONS ON PROPELLER HUBS

Mr. PRICE. The Safety Board determined last year that the probable cause of the April 19, 1993, aviation accident which killed George Mickelson, the Governor of South Dakota, and seven others was the fatigue cracking and fracture of the propeller hub arm. As a result, the Safety Board issued an urgent recommendation to the FAA that it expand inspections of Mitsubishi-type propeller hubs for fatigue damage and issue the necessary airworthiness directives. What was the FAA's response to your recommendations?

[The information follows:]

The Federal Aviation Administration has yet to formally respond to the Board's safety recommendation to inspect 4-bladed Hartzell propeller hubs for fatigue damage. We are aware, however, that the FAA issued Airworthiness Directive AD 94-03-11, effective February 28, 1994. The AD is applicable to approximately 290 Hartzell HC-B4 propeller hubs that may have been installed at one time on Mitsubishi MU-2B series airplanes and have not been inspected in accordance with two previous AD's, 93-09-04 and 93-12-01. The AD requires that a HC-B4 propeller must be inspected unless the owner can positively verify that it has never been used on a Mitsubishi MU-2B series airplane.

Mr. PRICE. The Safety Board also recommended expanded emergency procedures training for controllers as a result of this investigation. What was the basis for making this recommendation, and has the FAA responded to your recommendation?

[The information follows:]

The Safety Board has not received a reply from the Federal Aviation Administration (FAA) concerning the safety recommendations which concerned expanded emergency procedure training for air traffic controllers. While the Safety Board did not directly fault the controllers' performance, these safety recommendations were prompted by the fact the Board believed the controllers could have shown more initiative by offering the flightcrew of the MU-2 other alternate airports during their emergency descent. In addition, Safety Board staff believed that equipment at Air Route Traffic Control Centers (ARTCC) should be modified so that the weather conditions at several airports could be displayed. Ready access to this information would assist controllers to rapidly determine those airports with the best weather conditions and relay the information to pilots, as appropriate, in the event of an emergency.

PUBLIC USE AIRCRAFT

Mr. PRICE. In 1986, the General Accounting Office reported that most government-owned and operated aircraft are not operated and maintained according to FAA regulations. Was this an issue in the South Dakota crash and to what extent are the GAO's concerns still problematic?

[The information follows:]

The fact that many government-owned aircraft are not required to comply with Federal Aviation Administration (FAA) regulations was not considered a factor in the MU-2 accident involving a South Dakota public use aircraft in Zwingle, Iowa. However, this issue is being examined closely in connection with the crash of the FAA-owned and operated airplane near Front Royal, Virginia. In that case, the FAA had begun a project to bring its aircraft operations in line with the Federal Aviation Regulations, similar to those governing Part 135 commuter operations. That effort had not been completed and is being evaluated as to any connection with the factors that led to the accident. The FAA has reinitiated its efforts as the result of the accident and several safety recommendations from the Safety Board in connection with this case.

FAA AIRPLANE USAGE

Mr. PRICE. Would you provide an update on the Safety Board's use of the FAA plane? Has the aircraft been available to you when you needed it?

[The information follows:]

The National Transportation Safety Board used Federal Aviation Administration (FAA) aircraft nine times in calendar year 1993. FAA aircraft were used for all headquarters aviation launches (6), and were used for three surface transportation launches. The FAA did not refuse a request for the use of their aircraft in 1993.

COLONIAL PIPELINE ACCIDENT EMERGENCY RESPONSE

Mr. PRICE. Has the Safety Board assessed the emergency response conducted by Colonial Pipeline in the Reston, Virginia, oil spill and whether its efforts to mitigate the spill were adequate?

[The information follows:]

The Colonial emergency response efforts observed by the Safety Board during its Reston investigation were adequate and responsive to the initial and changing conditions resulting from the accident.

The Safety Board's investigation reviewed numerous documents required by Federal regulations and observed critiques of the response efforts with EPA, and Colonial Pipeline Company's Contingency plan, their Emergency Directory, and their Oil Spill Control Plan (in accordance with 49 Code of Federal Regulation 194). We also observed many critiques of the response that involved EPA staff, and the meetings indicated that the response was generally good. The Safety Board examined the response equipment that was available from Dorsey Junction.

COLONIAL PIPELINE INTERNAL INSPECTION

Mr. PRICE. After the Colonial Pipeline incident, RSPA asked Colonial to inspect its pipeline with an internal inspection device or "smart pig." The inspection revealed additional pipeline defects that were then repaired. In hindsight, do you believe that earlier use of "smart pigs" might have prevented the oil spill?

[The information follows:]

In 1989, Colonial Pipeline Company used an internal inspection device (pig) with calipers and did not detect the large dents adjacent to the rupture or the scrape. During the fall of 1993, Colonial Pipeline Company used both a magnetic-flux shoe pig and a slope deformation pig and identified 124 locations in the 45 mile segment between Chantilly, Virginia and Dorsey Junction, Maryland, that were excavated and examined. Eleven locations identified required sleeves, one was cut out and 89 other locations required repairs. Our conversation with the owner of the more sophisticated pigs indicated that the pigs may not have highlighted the 5-inch-long-longitudinal fatigue crack. However, the devices should have highlighted the adjacent dent, and perhaps if that was dug up, the scrape, and crack would have been found. As part of the Safety Board's special investigation on liquid petroleum product pipelines, we will further explore this issue.

PIPELINE INSPECTION DEVICES

Mr. PRICE. Should RSPA be more proactive in requiring companies to use the latest pipeline inspection devices, such as "smart pigs"?

[The information follows:]

The Safety Board has urged the Research and Special Programs Administration (RSPA) to issue regulations that called for facilitating the use of internal inspection devices at specific intervals for many years. Recommendation P-87-007 recommended that RSPA require that all new gas and liquid transmission pipelines be constructed to facilitate the use of in-line instrument inspection equipment. Recommendation P-87-004 recommended that RSPA require operations of both gas and liquid transmission pipelines to periodically determine the adequacy of their pipe-

lines to operate at established maximum allowable pressures by performing inspections or tests capable of identifying corrosion-caused and other time-dependent damages that may be detrimental to the continued safe operation of these pipelines and require necessary remedial action.

On February 1, 1993, the Safety Board responded to a Notice of Proposed Rule-making (NPRM) on "Passage of Instrumented Internal Inspection Devices" (PS-126, Notice 1) that required pipelines to be piggable. While the Safety Board agreed with the intent of the NPRM, we urged RSPA to require provisions for launching pigs and receiving them. If these provisions are not provided, it will be more difficult to use pigs, and they will not be used as often as they should. To inspect the 45-mile segment between Chantilly, Virginia and Dorsey Junction, Maryland, a removable spindle had to be installed. This effort took almost 18 hours to modify the line to be able to insert a pig. Closing the line for this duration is usually not practicable. Launching and receiving provisions must be included in RSPA's final rule.

In May, 1993, GAO conducted a study entitled "Use of Instrumented Technology to Inspect Pipelines". The study encouraged "pipeline companies to periodically inspect their pipelines to identify defects and flaws and take corrective action."

Once lines are piggable, RSPA should be proactive in requiring companies to use the latest pipeline inspection devices such as "smart pigs". In the Reston investigation, pigs were used and they identified 124 anomalies in a 45 mile segment. About 100 locations were fixed as a result of these inspections. This should reduce problems in the future.

RSPA PIPELINE INSPECTIONS

Mr. PRICE. RSPA has announced that it will give inspections of newly constructed hazardous liquid pipelines a higher priority. Based on what you have learned in your investigation of the Colonial incident, is that an appropriate priority for limited pipeline inspection resources?

[The information follows:]

As a result of the Colonial Pipeline accident investigation, we have concerns with the inspection of new or replaced pipelines. Around the Colonial pipeline there were large boulders. The pipe rested on bedrock and there were dents on the bottom of the pipeline. Pipelines expand and contract with changes in temperature. When large boulders are adjacent to the line, they abrade the pipe and can wear holes through the pipe walls. According to the RSPA, Colonial reported two releases as a result of pipe damage caused by abrasion with rocks. In Minnesota and Wisconsin, Minnesota's Office of Pipeline Safety reported to the Safety Board that another company had abrasion problems as a result of rocks adjacent to the line.

The Safety Board could not determine if the scrapes on the Colonial pipeline, caused by large construction equipment, were caused during initial construction or subsequent adjacent work. Outside contract inspectors were responsible for most of the inspection of the Colonial pipeline during its installation. There is always potential for inspectors to not be as vigilant as company or government inspectors during installation. Fairfax County was responsible for the oversight of the building adjacent to the pipeline, its parking lot, and its drainage facilities, as well as permits to build other adjacent pipelines. Based on the rapid growth of the County, its possible that inspectors were not always present, and these activities could have damaged the pipe. RSPA's increased inspection efforts should reduce initial inspection problems, however, it will not reduce damage during subsequent excavation, one of the leading causes of liquid pipeline accidents.

Additional oversight during construction will reduce the chances for using bad backfill or failing to fix scratched and dented pipe. In the past, the Safety Board is aware that some pipes were stressed during the transportation of the pipe by rail, from the point of manufacture to the point of installation, and later ruptured. The Safety Board's special investigation of liquid pipelines will look at the magnitude of this problem.

FEDERAL PIPELINE INSPECTORS

Mr. PRICE. At last year's hearing, the Safety Board indicated that it believed that RSPA does not have sufficient pipeline staff to conduct investigations as frequently as necessary and to ensure compliance with its pipeline regulations and that RSPA should con-

tinue to work with the States to bring about increased compliance. How many federal pipeline inspectors do you believe are necessary, given that states have shared responsibility for pipeline inspections?

[The information follows:]

As of 1991, 46 States inspect natural gas pipelines, but only 13 inspect liquid pipelines. Those States with no State programs (4) should have an inspector. In addition, States with liquid pipelines and no inspectors, should also have an inspector. Finally, States with a large number of liquid and natural gas transmission lines, numerous underground storage facilities, or new construction of large lines may warrant additional inspectors. The Safety Board estimates that perhaps, as many as 25 new inspectors may be warranted.

PIPELINE SAFETY REGULATORY PROGRAM

Mr. PRICE. Secretary Peña directed RSPA's Office of Pipeline Safety to develop an action plan to respond more quickly and comprehensively to pipeline spills that pose potential environmental hazards. That plan involves accelerating several rulemakings that address pipeline safety and environmental issues. These rulemakings address: hydrostatic testing of older pipelines; previously excepted low stress pipelines; smart "pigging" of new and replaced pipelines; liquid operator damage prevention programs; and emergency flow restricting devices.

Has the Safety Board reviewed RSPA's plans? Do you agree with the priorities that RSPA has established for the pipeline safety regulatory program?

[The information follows:]

The Safety Board has reviewed RSPA's six month regulatory agenda, and RSPA has provided the Safety Board with a projection of regulatory action in response to the Pipeline Safety Act of 1992. We have had discussions and correspondence on some of the subject regulations, and we have responded to two NPRMs (excepted low stress pipelines and smart "pigging" of new and replaced pipelines). In general, the Safety Board agrees with RSPA's plans. We have issued recommendations on all of the subject regulations, some over 20 years ago. All of the regulations are needed and should have priority assigned to them.

NTSB BUDGET REQUEST

Mr. PRICE. The President's budget request for fiscal year 1995 for NTSB is very lean. The request is for \$37.305 million, an increase of \$200,000 over fiscal year 1994. However, when one factors in the proposed reduction of \$259,000 in GSA rental payments that was transmitted by the administration after the budget was released, your fiscal year 1995 budget would actually be lower than your current budget. What will be the impact on your operations of such a tight budget?

[The information follows:]

Overall, the impact of this reduced funding level is a reduction 15 FTE positions from our fiscal year 1994 strength. These staffing cuts will further exacerbate the Board's current staffing depth problems in critical specialty areas. As a result, when accidents occur simultaneously or back to back, we may not be able to launch complete multi-disciplinary go-teams. In addition, the traveling public will experience a reduced level of safety oversight in both aviation and surface modes, less timely reports, a decrease in the number of safety improvement recommendations to correct identified safety problems, and a less vigilant effort devoted to ensuring implementation of recommended safety improvements.

Further, our investigators will be faced with more physical, emotional, and psychological demands than they already experience as they face tragedy almost every day. Training of our staff to ensure their currency with state-of-the-art techniques

and technologies will be hampered due to lack of backup expertise. In addition, our backlog of appeal cases will increase causing a degradation in safety as alleged violators continue to fly while awaiting disposition of their appeal by the Board.

Mr. PRICE. Your justifications indicate that the President's fiscal year 1995 request for the Safety Board is sufficient to fund only 343 full time equivalents in fiscal year 1995, a decrease of 15 FTEs below your fiscal year 1994 level. Is there a disagreement between the Safety Board and OMB on how many FTEs your 1995 request will support?

[The information follows:]

No, there is no disagreement between the National Transportation Safety Board and the Office of Management and Budget (OMB) on how many FTEs our 1995 request will support. The 350 FTE reflected in the President's fiscal year 1995 request is OMB's determination of the staffing level necessary for the Safety Board to comply with the President's employment reduction initiatives for fiscal year 1995.

FTE REDUCTIONS

Mr. PRICE. How would the Safety Board implement the 15 FTE reduction?

[The information follows:]

We do not know precisely where the position reduction will take place, since we expect attrition to get us to our target. However, because most of our positions are in the technical and investigative areas, we expect that most of the attrition will come from our technical and investigative specialties, thus further exacerbating our staffing depth problems. Although we expect attrition to get us to our FTE target in fiscal year 1995, it likely will take us a period of years to achieve the optimum mix of positions at the reduced level of 343 FTEs.

ACCIDENT INVESTIGATION STAFFING

Mr. PRICE. Last year, it seems that we had an unusual number of railroad and marine accidents, with fewer aviation accidents. Was this the case? If so, how did that mix of accidents affect the Safety Board's ability to properly staff those accident investigations?

[The information follows:]

Obviously, having an unusually high number of accidents in any mode puts a tremendous strain on our staff, forcing many of investigators to juggle several accidents at one time. Although we were able to properly staff these investigations it has caused both training and vacations to be canceled and delays in issuing reports.

NTSB STAFFING REDUCTIONS

Mr. PRICE. In the past, the Safety Board has indicated that there is a lack of staffing depth in critical positions. Did you have a problem in that regard last year? If so, in what areas?

[The information follows:]

To varying degrees, last year we experienced staffing depth problems in all modes of transportation, but primarily in the technical support areas such as aircraft systems, airworthiness, air traffic control, flight/event recorders aircraft performance, track structures/dynamics, bridge engineering, materials analysis, human performance, survival factors, and safety recommendation followup. The proposed reduction of 15 FTEs will further exacerbate this problem.

NTSB STAFFING NEEDS

Mr. PRICE. What is the Safety Board's estimate of the amount required in fiscal year 1995 to maintain your current staffing level?

[The information follows:]

Maintaining our current staffing level of 358 FTEs would require \$38.7 million.

Mr. PRICE. The Safety Board's fiscal year 1995 OMB submission requested 384 full time equivalent positions for fiscal year 1995, 34 FTE positions more than your fiscal year 1994 level and 41 FTE positions more than the President's budget. At a time when the Federal Government is scaling back on personnel, why do you believe the Safety Board should receive more staff?

[The information follows:]

The 384 FTE level requested by the National Transportation Safety Board for fiscal year 1995 is consistent with our authorized level, and also is the level we have determined is necessary to provide an adequate depth of staff in our critical investigative and technical positions. Achieving this staffing level is necessary for the Safety Board to provide essential services in investigation transportation accidents and in making recommendations to prevent future accidents. The Board's critical "watchdog" role has a direct impact on the level of public confidence in our Nation's transportation system, especially in the aftermath of a catastrophic accident.

The Safety Board's oversight role is critical in all modes of public transportation where travelers have little or no opportunity to ensure their own safety. Our vigilance assure the public that our transportation systems are safe and that when an accident does occur the Safety Board's independent analysis will help to ensure their future safety.

NTSB STAFFING ANALYSIS

Mr. PRICE. Was a detailed staffing analysis conducted to arrive at the 384 FTEs requested or were the 384 FTEs, included in your OMB submission merely because this is the number of staff included in your authorizing legislation?

[The information follows:]

A detailed analysis was performed in 1989, to determine the optimum staffing depth for each of our programs. Not having a full complement of staff in critical disciplines reduces our flexibility in covering both major and non-major aviation and surface transportation accidents and incidents in the U.S., as well as foreign aviation accidents, causing us to narrow the scope of some investigations, causing possible delays in issuing safety recommendations, and limiting our ability to followup on these recommendations.

NATIONAL PERFORMANCE REVIEW

Mr. PRICE. As you know, the National Performance Review report calls for a cumulative personnel reduction in executive agencies of 12 percent by 1999. Should the Safety Board be exempt from additional personnel reductions?

[The information follows:]

In our November 1, 1993, preliminary plan to streamline the National Transportation Safety Board submitted to the Office of Management and Budget (OMB), the Safety Board asked to be exempted from the targeted reductions in staffing. The Board's staffing level is currently approximately 350 employees, which is the target level for Safety Board staffing for FY 1994 in accordance with Executive Order 12839. It is our belief that the 350 FTE level is the minimum level necessary to accomplish our mission. A copy of our November 1, 1993, submission to OMB is below.



Office of the Chairman

National Transportation Safety Board

Washington, D.C. 20594

November 1, 1993

Honorable Leon E. Panetta
Director
Office of Management and Budget
Executive Office Building
Washington, DC 20503

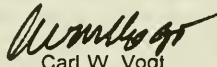
Dear Mr. Panetta:

Enclosed is our Preliminary Plan to Streamline the National Transportation Safety Board in accordance with your memorandum of October 8, 1993 entitled "Agency Streamlining Plans," and the "Informational Guidance" which amplified your memorandum. This plan provides general information on the Board's National Performance Review implementation plans.

We will be providing a more detailed plan in our December 1, 1993 response to the President's memorandum of September 11, 1993, entitled, "Streamlining the Bureaucracy."

Please let me know if I can be of further assistance.

Sincerely,


Carl W. Vogt
Chairman

Enclosure

**PRELIMINARY PLAN TO STREAMLINE
THE NATIONAL TRANSPORTATION SAFETY BOARD**

The National Transportation Safety Board is a small agency, with approximately 350 employees, whose primary responsibility is the investigation of transportation accidents and other safety problems, in all five modes of transportation. These investigations result in the development of safety recommendations to correct any safety problems uncovered.

The Safety Board accomplishes this large transportation role with a very small dedicated staff which has never exceeded 400 employees, and during the early 80's the staff was reduced to approximately 300 employees. The 300 level disrupted the Safety Board's ability to accomplish its transportation safety responsibilities and we have been working diligently since 1982 with OMB and the Congress to rebuild our transportation safety programs to the minimum level necessary to meet our statutory mandate. The Safety Board staffing level is currently approximately 350 employees, which is the target level for Safety Board staffing for FY 1994 in accordance with Executive Order 12839. However, our plan does not indicate further reductions in our staffing because the 350 level is the critical mass needed to effectively accomplish our transportation safety mission.

The 350 level is the minimum level necessary to accomplish our mission because our accident investigation responsibilities in all modes of transportation require a wide variety of skills. In many instances, we have only one or two people on our staff with the required skills to accomplish a given task. Therefore, should the staff be reduced below the 350 level, we must of necessity eliminate the application of certain skills to our accident investigations, with a concurrent reduction in accident prevention potential and investigative thoroughness.

In addition, reductions in staffing at the Safety Board will generate only minimal savings. Twelve percent of our FY 1993 staffing level (if we were required to take the full targeted reduction) would generate only 43 FTE in savings. This is a disastrous reduction for the Safety Board, but is inconsequential in terms of the 252,000 position reduction projected government wide.

Accordingly, we request to be exempted from the targeted reductions in staffing, as agencies with under 100 employees are in accordance with Executive Order 12839. The rationale for exempting the Safety Board and other agencies of similar size is the same as that for exempting agencies with under 100 employees.

The request to be exempted from Executive Order 12839 does not indicate a lack of support for the Administration's efforts to streamline government. In fact, we think that

the Safety Board has been in the forefront of efforts to make government more responsive, effective and efficient in the past and we will continue to seek out innovative approaches in the future which will avert the need for additional resources.

In our core area of responsibility, accident investigation, we have minimized our need for resources by developing procedures to accomplish our responsibilities using the resources of others.

The Safety Board investigative staff manages other experts from industry and government in the collection of facts, conditions and circumstances surrounding the accidents we investigate. The participation of these other "parties" greatly multiplies the Board's resources and without the donated assistance provided by these parties the Board could not accomplish its large volume of work with its current resources. There is also an additional safety benefit from this participation in that it ensures general agreement over the findings of the investigation, and allows first-hand access to information so that appropriate corrective actions may be taken immediately by the parties. The leveraging of Federal resources which this Safety Board policy has been accomplishing is precisely the type of innovative management of Federal programs called for in the National Performance Review.

Another means by which the Safety Board multiplies the use of its limited accident investigation resources is by delegating the accidents with lesser accident prevention potential to other government agencies. For example, the Board currently delegates the investigation of aviation accidents involving agricultural, experimental, and home-built aircraft to the Federal Aviation Administration, while retaining only the determination of the probable cause of these accidents. In the railroad area, the Board only investigates about 40 percent of the railroad accidents, leaving the remainder for investigation by other state or Federal authorities. In the marine area, the Board only independently investigates approximately eight percent of the major marine accidents, requesting the Coast Guard to investigate the others for it. In the pipeline function, the Board requests that state and Federal pipeline authorities investigate approximately 75 percent of all accidents each year. By selecting only those accidents with the most accident prevention potential, while delegating the investigation of other accidents, the Board achieves the maximum safety benefit from its limited resources. However, investigations delegated to agencies that have regulatory authority always run the risk of producing biased findings that fail to identify regulatory inadequacies or insufficient regulatory agency oversight.

By utilizing the resources of others, however, the Safety Board has been able to maintain a relatively constant employment level in the face of continually increasing complexity in the accidents we are required to investigate. Technological advances in the aviation industry, for example, have resulted in glass cockpits, fly-by-wire and use of composite materials; advances in the railroad industry have resulted in satellite and ground based advanced train control systems, sophisticated electronic alerting devices, digitized electronic event recorders, and end-of-train telemetry devices; and marine

industry technological advances have included satellite electronic navigation and small water plane area twin hulls. These and other advances in technology have contributed to the necessary specialization of our staff and the lack of staffing depth in most specialty areas.

The Safety Board has also used technology and other management improvements to obtain the greatest productivity from our limited staff and avoid staff increases. The Board has invested heavily in automation. Almost every employee at the Board has a computer on their desk and many employees use laptops when travelling or on accident investigations. We have installed a new technology local area network to connect all of our computers and enable the transfer of information between all employees including the regional office staffs. Our most recent technological improvement has been the installation of a paperless office concept using optical imaging equipment to allow our investigative staffs to develop their reports, which include pictures and graphics, without the transfer of paper. Additionally, we also share technology with the agencies in the Department of Transportation with which we primarily interface (FAA, FRA, NHTSA, and USCG).

The Safety Board has also implemented a significant number of management improvements to increase the efficiency and effectiveness of the staff. These initiatives are directly in line with the management practices described in the National Performance Review.

The first step the Board took to improve the efficiency and effectiveness of our operations was to streamline the Safety Board organization so that managers are accountable for their functions and have all the resources under their control to complete their end products.

A second step was to decentralize the decision making responsibility, including budget authority, from top management to the divisions and regional offices. This change has allowed us to eliminate some support positions and convert them to additional investigative positions.

A third step we took was to have each Office develop a mission statement and goals and objectives for their organization. The objectives include specific measures of quality, quantity, and timeliness of all Board workload products, such as safety recommendations, accident investigation reports and safety studies. Periodic meetings are held to assess progress in meeting these goals and objectives. In addition, the goals and objectives are updated annually to assure that we are continually improving our effectiveness and efficiency.

However, despite this significant long-term attention to improved efficiency, we welcome the Report of the National Performance Review and the additional incentive of the President's plan to Streamline the Bureaucracy and we plan to further improve our organization and programs in accordance with those guidelines. The following are some

of the further activities that we plan to undertake.

Analyze Mission and Functions. The first activity that we will undertake is a detailed review of our mission and functions. The goal of this review is to: (1) determine if the functions need to be accomplished at all; and (2) if the functions should be accomplished, then, should they be accomplished at the Federal, state or local level.

Reduce the Ratio of Managers and Supervisors to Other Personnel. The Safety Board is taking a two pronged approach to addressing this item. First, we will carefully review each supervisory and management position that becomes vacant to determine if it can be eliminated or consolidated with the functions of another position. Second, we will identify creative ways in which to encourage supervisors and managers whose positions might be consolidated or restructured to retire or accept other positions. We have already been working with the Office of Personnel Management to determine the feasibility of implementing some of these ideas. However, the Safety Board, along with most small agencies, has a higher supervisor to employee ratio than the average in government because of the variety of skills required and the small number of personnel in each technical area. It is, therefore, not realistic to expect that we, or other small technical agencies, will be able to meet the 1 to 15 ratio established for government as a whole.

Restructure the Organization. We are going to re-analyze the whole organizational structure of the Safety Board. The goal of this multifaceted review is to identify ways: (1) in which Regional Offices and headquarters organizational units can be eliminated or consolidated; (2) in which even more authority can be delegated to the lower levels in the organization; (3) to decentralize decision making to the lowest levels in the organization; (4) to reduce unnecessary controls and micromanagement; (5) to eliminate unnecessary vertical layering; and (6) to empower employees by making them accountable and responsible for performance and results, and providing them with the flexibility to develop alternative approaches to accomplishing their mission.

Reduce Internal Management Regulations and Administrative Staff. The Safety Board intends to review all of its internal management regulations and we expect to reduce these regulations to the same degree that concurrent regulations are reduced by the Office of Management and Budget, the Office of Personnel Management, and the General Services Administration. The Safety Board, like most small agencies, has only the minimum amount of internal management regulations required because we do not have staff members dedicated solely to writing regulations; our regulations are written instead by the operations staff as a collateral duty. We, also, intend to review the budget, acquisition, accounting, auditing and personnel functions in conjunction with the reduction in regulations to determine what staffing reductions can be accomplished. It should be noted, however, that small agencies are not going to be able to make as large a percentage reduction in these areas as large agencies, since the regulation-writing staffs in large agencies would be an immediate source of reductions. Also, small agencies have very limited numbers of employees in the other functional areas cited for reduction. For

example, we do not have auditors and we have only one contracting position and one procurement position; we obviously need some expertise in each of these areas.

Increase Use of New Technology. The Safety Board will continue to utilize new technology to increase the productivity of its staff and operations. This effort will be even more important in the future than it has been in the past, if the Safety Board is to maintain its productivity, effectiveness and efficiency in the face of static resources.

Enhance Employee Morale. The Safety Board places a high priority on good employee morale. It will be necessary to increase our efforts to maintain high morale because of the changes and disruptions that will be occurring as a result of further streamlining of Safety Board programs. Employee empowerment will be emphasized to assure that employees see the benefits of the changes. In addition, special emphasis will be placed on employee training and crosstraining to alleviate the anxiety associated with any changes. However, it should be noted that the Board has only one Employee Development Specialist to accomplish this new work, in addition to continuing to carry out all other current Board training requirements.

Improve Customer Service. The Board has had a customer service program in our administrative area for the last two years. We plan to expand the program to all offices. The primary thrust of our expanded plan will be to identify who all of our customers are and find out what these customers expect from us. Based on our customers' expectations we will develop quality standards and continually measure our results against these standards.

In conclusion, in many ways the Safety Board has already been operating in accordance with the tenets of the National Performance Review by: addressing real world tangible problems, allowing industry full participation in our work, delegating activities to the state and local level wherever practical, making recommendations instead of regulations, and disseminating all our reports and findings to as wide a customer base as possible. In addition, we are a small, manageable organization that can react quickly to changes in the transportation environment to meet our customers needs. As with many small entrepreneurial organizations, we can implement a solution in the time it takes a large department to form a task force, to develop a plan, and to identify the problem.

We look forward to working toward achieving many of the innovative management improvements of the National Performance Review.

AUTHORIZED LEVELS

Mr. PRICE. Please provide the authorized funding levels for the Safety Board for fiscal years 1995 through 1997.

[The information follows:]

Last year the House of Representatives passed a reauthorization bill at the following levels; \$37,580,000 for the fiscal year ending September 30, 1994; \$44,000,000 for the fiscal year ending September 30, 1995; and \$45,100,000 for the fiscal year ending September 30, 1996.

Identical legislation was reported out of the Senate Commerce, Science and Technology Committee last year and is pending on the Senate Calendar. As of March 10, 1993, the full Senate has not acted on the legislation.

BOARD MEMBER TERMS

Mr. PRICE. Would you review the status of each of the Board members' terms?

[The information follows:]

The terms of the five Board members follow:

Chairman Carl W. Vogt	Membership began June 22, 1992. Term as Member expires December 31, 1996. Term as Chairman expires June 21, 1994.
Vice Chairman Susan M. Coughlin.	Membership began February 11, 1990. Term as Member expired December 31, 1993. Present term as Vice Chairman expires June 20, 1994.
John K. Lauber	Membership began November 25, 1985. Second term as Member expires December 31, 1994.
John A. Hammerschmidt ...	Membership began July 1, 1991. Term as Member expires December 31, 1995.
James E. Hall	Membership began October 15, 1993. Term as Member expires December 31, 1997.

NTSB STAFFING LEVEL

Mr. PRICE. At the 343 FTE level funded under the President's fiscal year 1995 request, it appears that the Safety Board would be absorbing a greater staffing reduction than the government-wide target of a 4 percent below fiscal year 1993 level. Is that an accurate assessment?

[The information follows:]

Yes, that is an accurate assessment. The 343 FTE level funded under the President's fiscal year 1995 request reflects an 8 percent reduction from the fiscal year 1993 level, or twice the government-wide target.

STAFFING REDUCTIONS

Mr. PRICE. Do you anticipate any reductions-in-force in fiscal year 1995 to order to achieve the proposed 15 FTE staffing reductions?

[The information follows:]

We will make our staffing cuts through attrition. The down side of relying on attrition, of course, is that we have no idea which positions will become vacant over the next several months. It likely will take us a period of years to achieve the optimum mix of positions at the reduced level of 343.

NTSB STAFFING LEVEL

Mr. PRICE. Please supply information on the assumptions that the Safety Board used to arrive at an estimate of 343 FTEs in fiscal year 1995, and the assumptions used by OMB in developing the Safety Board's budget and FTE level.

[The information follows:]

The Analysis of Changes section of our fiscal year 1995 budget request provides more detail regarding the Safety Board's assumptions. However, in general we expect that it will be necessary to absorb approximately \$1.7 million in uncontrollable cost increases in fiscal year 1995. In order to cover these inflationary as well as pay-related increases, the Board assumes \$.2 million in additional funding, a \$.1 million reduction in administrative expenses in accordance with OMB Bulletin 93-09 (Executive Order 12837), and \$1.4 million savings through reductions in staff. The staff reduction is based on the Board's current average cost per FTE of approximately \$94,000, which includes both pay and non-pay expenses. Should the attrition occur in positions at lower compensation levels than the average, the required reduction in FTE to achieve the necessary dollar savings would be higher.

The 350 FTE level reflected in the President's fiscal year 1995 request is OMB's determination of the staffing level necessary for the Safety Board to comply with the President's employment reduction initiatives for fiscal year 1995. Except for the fact that we are expected to absorb practically all cost increases in fiscal year 1995, we do not know what specific dollar assumptions OMB used in developing the Safety Board's budget.

NTSB ON-BOARD EMPLOYMENT

Mr. PRICE. Please provide a table that details your current on-board employment by major organizational unit within the NTSB.

[The information follows:]

On-board employment as of February 28, 1994 is as follows:

Policy & Direction	50
Aviation Safety	124
Surface Trans. Safety	91
Research & Engineering	55
Administration	28
Administrative Law Judges	15
Total	363

NTSB STAFFING REQUEST TO OMB

Mr. PRICE. Please provide a table that displays the additional positions requested in the Safety Board's OMB submission by type of position and office within NTSB, and include the justification made to OMB for those positions.

[The information follows:]

In order to fulfill our vital transportation safety oversight role, and keep abreast with the introduction of advanced technologies in the transportation environment and the annual growth in the transportation industry, we must further enhance our staffing depth for each of our critical technical and investigative functions. The result will be improved safety in aviation, railroad, highway, marine, and hazardous materials transportation through more complete investigations, more timely and well-written reports, and an increase in the number of safety improvement recommendations to correct identified safety problems.

Further, our investigators will be faced with fewer physical, emotional, and psychological demands which are especially inherent to an understaffed organization such as ours, whose employees experience tragedy almost every day. These resources also will help to implement the Board's new civil penalty adjudicatory function and to reduce the significant backlog of appeal cases that currently await disposition by either the Administrative Law Judges or the full Board. Finally, the Board will be better able to handle the increasing amount of litigation arising from its accident investigations.

The lack of sufficient depth in individual areas of expertise also affects our ability to provide the annual training needed to keep abreast of new technology, and to instill the leadership skills needed for progression to management, including senior investigative positions. If sufficient resources are not made available, the Safety Board will be unable to provide this vital training. As a result, it will be difficult to retain qualified employees, and the Board will have to rely more and more on the technical expertise to its investigations to determine the probable cause(s) of accidents. This arrangement is not acceptable because it seriously jeopardizes the accuracy and objectivity of these investigations, and creates the potential for a public perception of conflicts of interest.

The 34 additional positions follow:

Staffing Depth in Technical/Investigative Specialties: (27)

Aviation:	14
Railroad:	5
Highway:	4
Marine:	3
Haz Mat:	1

Aviation Appeals and General Litigation: (5)

Computer Programmer Analyst: (1)

Personnel Staffing Specialist: (1)

NTSB STAFFING LEVELS

Mr. PRICE. Please provide a table that details fiscal year 1994 and proposed fiscal year 1995 staffing levels in headquarters, regional and field offices.

[The information follows:]

Staffing levels in headquarters and field offices for fiscal year 1994 and fiscal year 1995 are as follows:

	FY 1994	FY 1995
Headquarters	251	237
Regional/Field Offices	107	106
Total	358	343

SENIOR EXECUTIVE SERVICE BONUSES

Mr. PRICE. Please provide the amounts budgeted for senior executive service bonuses in fiscal years 1994 and 1995.

[The information follows:]

In fiscal year 1994 there is \$50,000 budgeted for SES awards. In fiscal year 1995, we have budgeted \$60,000 for SES awards.

SENIOR EXECUTIVE SERVICE EMPLOYEES

Mr. PRICE. Please provide a listing of the senior executive service employees currently on board and their grade levels.

[The information follows:]

Position:	Grade Level
Managing Director (Vacant)	ES-06
Deputy Managing Director	ES-06
General Counsel	ES-06
Deputy General Counsel	ES-03
Director, Office of Administration	ES-06
Director, Office of Aviation Safety	ES-06
Deputy Director, Office of Aviation Safety	ES-05
Director, Office of Research and Engineering	ES-06
Deputy Director, Office of Research Engineering	ES-02
Director, Office of Safety Recommendations	ES-05
Director, Office of Surface Transportation Safety (Vacant)	ES-05
Deputy Director, Office of Surface Transportation Safety	ES-02

MANAGERS AND SUPERVISORS

Mr. PRICE. What is the current ratio of managers and supervisors to other personnel in each of the major program areas?

[The information follows:]

The current ratio of managers and supervisors, excluding Members and their staff and Law Judges, to other personnel in each of the major program areas is as follows:

Policy & Direction	1:2.7
Aviation Safety	1:3.5
Surface Transportation Safety	1:3.6
Research & Engineering	1:5.4
Administration	1:2.7
Administrative Law Judges (support staff)	1:6.0

Because of our small size, many of our managers and supervisors perform both professional and technical tasks.

ACCIDENT REPORT TIMELINESS TABLE

Mr. PRICE. Please update for the hearing record the tables summarizing the time required to issue your accident reports found on page 288 of last year's hearing record.

[The information follows:]

TIMELINESS OF ACCIDENT REPORTS
TIME BETWEEN OCCURRENCE AND THE ADOPTION OF REPORTS

Fiscal Year	AVIATION			RAILROAD			HIGHWAY			MARINE			HAZ MAT/PIPE			TOTAL		
	FTE	Rpts (MOS.)	Ave. Elapspd Time	Rpts (MOS.)	Ave. Elapspd Time	Rpts (MOS.)	Rpts (MOS.)	Ave. Elapspd Time	Rpts (MOS.)	Rpts (MOS.)	Ave. Elapspd Time	Rpts (MOS.)	Rpts (MOS.)	Ave. Elapspd Time	Rpts (MOS.)	Rpts (MOS.)	Ave. Elapspd Time	
MAJORS:																		
FY79	378	19	6.9	13	6.2	8	10.8	19	14.4	4	6.5	63	9.5					
FY80	380	13	8.8	11	5.8	6	5.6	18	12.9	7	7.2	55	9.0					
FY81	365	16	8.6	12	5.5	8	5.9	12	8.3	5	10.4	53	7.6					
FY82	306	14	11.4	8	7.5	7	7.9	8	10.5	3	6.6	40	9.5					
FY83	308	10	9.2	10	8.4	5	7.5	9	12.5	3	7.3	37	9.4					
FY84	331	13	11.7	6	7.4	7	9.1	9	10.1	5	10.2	40	10.1					
FY85	336	10	10.8	11	14.0	6	8.3	12	11.6	6	13.7	45	11.8					
FY86	323	6	11.2	6	14.5	5	8.6	14	12.0	5	14.2	36	12.1					
FY87	324	8	10.8	6	14.8	6	13.9	8	10.3	6	15.2	34	12.7					
FY88	324	9	12.0	4	11.9	5	10.3	10	11.7	1	11.7	29	11.6					
FY89	324	8	14.1	5	11.1	5	10.7	8	10.4	1	9.1	27	11.6					
FY90	325	5	12.2	3	11.8	4	12.3	6	15.8	4	14.4	22	13.5					
FY91	344	8	12.8	4	14.3	2	13.8	7	17.7	2	10.8	23	14.5					
FY92	357	7	11.0	2	17.1	2	15.1	6	19.8	1	16.0	18	15.3					
FY93	373	7	11.7	5	23.2	2	21.7	2	9.6	2	17.7	18	16.4					
E94	358	6	12.2	4	24.1	2	22.6	2	10.0	2	18.4	16	17.0					
E95	343	5	12.7	3	25.1	2	23.5	2	10.4	2	19.2	14	17.5					
Average	341	10	10.5	7	11.0	5	10.3	9	12.4	3	11.7	34	11.2					

ACCIDENT REPORT TIMELINESS

Mr. PRICE. Data submitted last year indicates that it now takes the Safety Board an average of about 15 months to issue a major report. Has the Safety Board explored ways to implement efficiencies that might reduce the time required to complete accident reports?

[The information follows:]

In fiscal year 1993 the Safety Board was able to increase its staff level by about 5 FTEs over 1992. This, in addition to implementing new methods to improve the quality and timeliness of our accident reports have resulted in improvements in the timeliness of issuing aviation accident reports—from 12.8 months in fiscal year 1991 to 11.7 months in fiscal year 1993. However, the prospect of future reductions in staff will reverse this positive trend.

RECOMMENDATION ACCEPTANCE RATES/RESPONSES

Mr. PRICE. Please include in the record the current acceptance rates of the Safety Board's recommendations and average response times by modal administration within DOT.

[The information follows:]

**Federal Aviation Administration
1989-1993**

Year	Recs. Issued	Avg. time to 1st Response	Acceptance Rate
1989	129	73	87.2%
1990	154	69	79.9%
1991	115	66	89.4%
1992	91	68	74.4%
1993	124	68	90.4%

**Federal Highway Administration
1989-1993**

Year	Recs. Issued	Avg. time to 1st Response	Acceptance Rate
1989	11	117	100%
1990	28	220	77.8%
1991	7	116	85.7%
1992	28	145	96.4%
1993	4	113	100%

**Federal Railroad Administration
1989-1993**

Year	Recs. Issued	Avg. time to 1st Response	Acceptance Rate
1989	11	249	90.0%
1990	8	115	75.0%
1991	14	420	84.6%
1992	8	110	100%
1993	4	92	100%

**National Highway Traffic Safety Administration
1989-1993**

Year	Recs. Issued	Avg. time to 1st Response	Acceptance Rate
1989	15	117	93.3%
1990	6	115	100%
1991	3	118	100%
1992	7	127	100%
1993	No Recs. Issued to NHTSA in 1993		

**Research & Special Programs Administration
1989-1993**

Year	Recs. Issued	Avg. time to 1st Response	Acceptance Rate
1989	7	99	71.4%
1990	24	180	90.9%
1991	7	205	100%
1992	9	143	100%
1993	4	65	100%

**U. S. Coast Guard
1989-1993**

Year	Recs. Issued	Avg. time to 1st Response	Acceptance Rate
1989	82	332	64.9%
1990	53	185	86.3%
1991	16	202	75.0%
1992	25	282	95.6%
1993	24	88	90.0%

RECOMMENDATION ACCEPTANCE RATE CALCULATIONS

Mr. PRICE. Why does the Safety Board's acceptance rate calculations include recommendations that are still open, including those that are considered "open-unacceptable"?

[The information follows:]

The "Acceptance Rate" effectiveness criteria was developed to give a "real time" picture of what was happening with our recommendations. The formula used to determine "Acceptance Rate" is:

$$\text{Acceptance Rate (expressed as a \%)} = \frac{\text{Sum of all "Acceptable" Recommendations (Open \& Closed)}}{\text{All issued-(sum of non-category status recommendations)}}$$

This formula takes into account all recommendations on which action (or non-action) is complete as well as those for which action is underway. It removes those recommendations have no status assigned as yet -- "Await Response" and "Response Received." and discounts those that have been superseded, reconsidered or overtaken by events.

RECOMMENDATION ACCEPTANCE RATES CLOSED

Mr. PRICE. Please update the chart concerning closeouts on page 291 of last year's hearing record.

[The information follows:]

Year	Closed	Closed—acceptable or acceptable alternate	Percent
1986	482	331	69
1987	624	409	66
1988	475	281	59
1989	365	240	66
1990	375	281	75
1991	298	212	71
1992	346	212	61
1993	573	429	75

INVESTIGATIONS AND STUDIES PENDING

Mr. PRICE. Please provide a list of all major accident investigation reports and safety studies that are pending.

[The information follows:]

Aviation Accident Investigation Reports and Safety Studies Pending

Continental Express
Embraer EMB-120
Pinebluff, Arkansas
April 29, 1993

Connie Kalitta Aba ATI
DC-8-61, flight 808 N814CK
Guantanamo Bay, NAS Cuba
August 18, 1993

FAA Beech 300
KingAir, N82
Front Royal, Virginia
October 26, 1993

Express Airlines II
dba Northwest Airlinck
BAe Jetstream 31
Hibbing, Minnesota
December 1, 1993

Atlantic Coast Airlines
dba United Express flight 6291
BAe Jetstream J4101
Columbus, Ohio
January 7, 1994

American Eagle flight 3641
Saab 340
False River Air Park, New Roads, LA
February 1, 1994

Continental Airlines
MD-80
LaGuardia Airport, New York
March 2, 1994

Safety Studies

Commuter Airline Safety

Safety of On-Demand Air Taxis

Surface Accident Investigation Reports and Safety Studies Pending

Truck Collision with a Bridge
Evergreen, Alabama
May 19, 1993

Towboat Collision with Judge Seeber
Bridge and Consequent Bridge Collapse
New Orleans, LA
May 28, 1993

Pipeline Explosion
Northern States Power
St. Paul, Minnesota
July 22, 1993

Derailment of Amtrak Passenger
Train #2
near Saraland, Alabama
September 22, 1993

U.S. Tankship OMI Charger Explosion
Galveston, Texas
October 9, 1993

Collision of Netherlands Passenger Ship
NOORDAM and Greek Bulk Carrier
MOUNT YMITOS
Gulf of Mexico
November 6, 1993

Schoolbus Collision with a Truck
Snyder, Oklahoma
November 10, 1993

Head-on Collision Between Burlington
Northern and Union Pacific
Freight Trains
Kelso, Washington
November 11, 1993

Amtrak Train Grade Crossing Collision
With a Truck
Intercession City, Florida
November 30, 1993

Sinking of U.S. Passenger Vessel
EL TORO II
Chesapeake Bay, MD
December 5, 1993

Derailment of Ringling Brothers,
Barnum & Bailey Circus Train
Lakeland, Florida
January 13, 1994

Safety Studies

The Role in Fatigue in Commercial
Vehicle Accidents Safety Study

Child Passenger Safety Study

Liquid Petroleum Pipelines Special
Investigation

SAFETY STUDIES PLANNED

Mr. PRICE. What safety studies have not been initiated, but are planned for fiscal years 1994 and 1995?

[The information follows:]

Safety Studies planned for fiscal years 1994 and 1995: Child occupant protection; commuter airlines safety; safety of on-demand air taxis; highway/rail grade crossing safety.

We are currently discussing what additional studies will be proposed for implementation in fiscal 1996. That information will be included in our September budget submission to the Office of Management and Budget.

INVESTIGATION EFFORTS AND STUDIES COMPLETED

Mr. PRICE. Please provide a listing of all accident investigation reports and safety studies completed by the Safety Board in 1992 and 1993.

[The information follows:]

Aviation Reports Adopted in Calendar Years 1992 and 1993

United Airlines Flight 585
Colorado Springs Municipal Airport
Colorado Springs, Colorado
March 3, 1991

Atlantic Southeast Airlines, Inc. Flight 2311
Brunswick, Georgia
April 5, 1991

L'Express Airlines, Inc. Flight 508
near Birmingham, Alabama
July 10, 1991

Continental Express Flight 2574
Eagle Lake, Texas
September 11, 1991

Business Express, Inc.,
near Block Island, Rhode Island
December 18, 1991

Air Transport International, Inc. Flight 805
Swanton, Ohio
February 15, 1992

USAir Flight 405
LaGuardia Airport
Flushing, New York
March 11, 1992

Scenic Air Tours
Mount Haleakala, Maui, Hawaii
April 22, 1992

GP Express Airlines, Inc.
Anniston, Alabama
June 8, 1992

Trans World Airlines Flight 843
John F. Kennedy International Airport
Jamaica, New York
July 30, 1992

Midair Collision
Greenwood Municipal Airport
Greenwood, Indiana
September 11, 1992

China Airlines
20 Miles East of Japan
December 7, 1992

Japan Airlines, Inc.
Anchorage, Alaska
March 31, 1993

China Eastern Airlines
over the Pacific
April 6, 1993

American Airlines Flight 102
Dallas, Texas
April 14, 1993

Public Use Aircraft
State of South Dakota
Zwingle, Iowa
April 19, 1993

GP Express
near Shelton, Nebraska
April 18, 1993

Aviation Special Investigations/Special Studies

Flight Attendant Training and Performance
During Emergency Situations

Piper Aircraft Corporation PA-46 Malibu/Mirage
Accidents/Incident
May 31, 1989 to March 17, 1991

Alcohol and Other Drug Involvement in
Fatal General Aviation Accidents
1983 Through 1988

Commercial Space Launch Incident
Orbital Sciences Corporation
Pegasus/SCD-1
80 Nautical Miles East of Cape Canaveral, Florida
February 9, 1993

A Review of Flightcrew-Involved, Major Accidents
of U.S. Air Carriers, 1978 Through 1990

Highway Reports Adopted in Calendar Years 1992 and 1993

Greyhound Bus Run-Off-The Road Accidents
Donegal, Pennsylvania, June 26, 1991 and
Caroline, New York, August 3, 1991

Mayflower Contract Services, Inc.
Tour Bus Plunge from Tramway Road
and Overturn
near Palm Springs, California
July 31, 1991

Charter Bus Loss of Control
Overturn and Fire
Vernon, New Jersey
July 26, 1992

Highway Special Investigations/Special Studies

Cargo Tank Rollover Protection

Medium/Heavy Truck Wheel Separations

Heavy Vehicle Airbrake Performance

Highway Work Zone Safety

Marine Reports Adopted in Calendar Years 1992 and 1993

Capsizing and Sinking of the
U.S. Fishing Vessel SEA KING
near Astoria, Oregon
January 11, 1991

Ground of the United Kingdom
Passenger Vessel RMS QUEEN ELIZABETH 2
near Cuttyhunk Island
Vineyard Sound, Massachusetts
August 7, 1992

Collision of the U.S. Towboat FREMONT and Tow
with the Grenadines-Registered Containership
JURAJ DALMATINAC
Houston Ship Channel
December 21, 1992

Marine Special Investigations/Special Studies

Accidents Involving Foreign Passenger
Ships Operating from U.S. Ports
1990 - 1991

Recreational Boating Safety

Pipeline Reports Adopted in Calendar Years 1992 and 1993

Over-Pressure of Peoples Gas Light
and Coke Company Low-Pressure
Distribution System

Chicago, Illinois
January 17, 1992

Highly Volatile Liquids Release from
Underground Storage Cavern and Explosion
Mapco Natural Gas Liquids, Inc.

Brenham, Texas
April 7, 1992

Railroad Reports Adopted in Calendar Years 1992 and 1993

Rear-End Collision Involving Two
Greater Cleveland Regional Transit
Authority Trains near the West 98th
Street Station
Cleveland, Ohio
July 2, 1991

Derailment and Subsequent Collision of
Amtrak Train 82 with Rail Cars on DuPont
Siding of CSX Transportation, Inc. at
Lugoff, South Carolina
July 31, 1991

Head-On Collision Between
Burlington Northern Railroad Freight
Trains 602 and 603
near Ledger, Montana
August 30, 1991

Derailment of Amtrak Train 87
Silver Meteor
Palatka, Florida
December 17, 1991

Collision Between Northern Indiana Commuter
Transportation District Eastbound Train 7
and Westbound Train 12
near Gary, Indiana
January 18, 1993

Railroad Safety Study

Locomotive Fuel Tank Integrity

Inspection and Testing of Railroad Tank Cars

EMERGENCY FUND

Mr. PRICE. The Board's OMB budget submission includes a request of \$360,802 to replenish the Board's emergency fund to its authorized level of \$1.0 million. A similar request was made last year. Why do you believe that the existing cushion of \$639,189 provides the Board with insufficient flexibility?

[The information follows:]

In fiscal year 1982, the Congress provided the Safety Board with a \$1 million emergency fund to allow us to meet our accident investigation responsibilities despite the fluctuating nature of transportation accidents and their costs.

Although the Board has had to use the Emergency Fund only twice since it was established, the potential for substantial accident investigation costs remains. Just one accident could wipe out the entire fund. Had the December 1988 bombing of Pan Am Flight 103 occurred a few minutes later, the aircraft would have been over international waters, and the Safety Board would have taken the lead in the investigation. As it was, the British Government conducted the investigation and spent over \$30 million for this one investigation.

Examples of emergencies that would prompt the Board to use this special funding mechanism include: (1) funding an expensive major accident investigation occurring within the last months of the fiscal year, when the Board would not have the flexibility to reprogram funds from other areas; and (2) to pay for necessary extraordinary costs for a single accident investigation that would far exceed the normal costs for which we would have budgeted.

The Safety Board's emergency fund ensures that there always will be sufficient funds available to conduct thorough accident investigations and to identify and recommend needed safety improvements, particularly in years in which there is a large number of catastrophic accidents. However, the Safety Board will use this fund only when it determines that an accident investigation is required in the interest of public safety and there are no other funds available to perform the work.

This emergency fund should be a continuing fund, which is maintained at the \$1 million level through replenishment when funds are used. Restoring these funds as they are expended is a very small investment to make to ensure that sufficient funds will be available to cover unexpected, urgent needs arising from catastrophic transportation accidents.

Mr. PRICE. When was the last time that the Safety Board tapped the emergency fund and what were the circumstances?

[The information follows:]

The occasion that prompted our most recent use of the Emergency Fund was to locate and recover the cargo door that was separated from a United Airlines' Boeing 747 during its flight over the Pacific Ocean in February of 1989. The total cost of this operation was \$443,000, of which the Safety Board contributed only \$70,000, or 16 percent. The Safety Board was not able to share equally in this cost due to the low balance in the Emergency Fund, and the lack of any assurances that these funds would be replenished. As a result of the recovery, the Safety Board revised its probable cause of this accident.

ALCOHOL AND DRUG TESTING

Mr. PRICE. Secretary Peña recently announced final regulations governing alcohol and drug testing in the transportation industry. As you know, some of the industry groups, notably aviation and trucking, have expressed concerns about the regulatory requirement that employers must randomly test at least 25 percent of all safety-sensitive employees. In the past, the Safety Board has supported random testing of transportation employees. Do you believe that the frequency of random testing specified in the final regulations is appropriate?

[The information follows:]

The National Transportation Safety Board believes that the testing rate for random drug and alcohol testing should be at the lowest rate that will provide deterrence, but the Board does not have sufficient information to determine this level.

In February 1994, the Department of Transportation published a Notice of Proposed Rule Making (NPRM) to reduce the present rate of random testing to 25 percent provided the random positive rate is less than 1 percent for 2 calendar years while testing at the 50 percent rate. In this proposal, the random rate will return to 50 percent if the industry random positive rate were 1.0 percent or higher in any subsequent calendar year.

PREEMPLOYMENT ALCOHOL TESTING

Mr. PRICE. The issue of preemployment alcohol testing has been controversial in the transportation industry. Unlike preemployment drug testing, some have questioned the value of preemployment alcohol testing when it is relatively easy for an individual to simply refrain from alcohol use several hours prior to a preemployment test being taken. Does the Safety Board have an opinion on the efficacy of preemployment alcohol testing?

[The information follows:]

Preemployment alcohol testing is not likely to identify most individuals that have alcohol use problems, since it is relatively easy to abstain from alcohol use sufficiently long to pass the preemployment testing. However, this requirement may identify the individual who cannot control their alcohol use.

BLOOD ALCOHOL CONCENTRATION

Mr. PRICE. DOT's regulations set a blood alcohol concentration of 0.04 or greater as a rule violation, and prohibit the use of alcohol by safety sensitive transportation workers four hours (eight hours for flight crew) prior to duty. In the Safety Board's opinion, are these appropriate thresholds?

[The information follows:]

The Safety Board has previously issued Recommendation (I-89-12) to the Secretary of Transportation to "issue rules specifying zero (no alcohol) as the blood alcohol concentration for private sector employees in safety sensitive positions in all transportation modes and for Federal employees in safety sensitive positions." This recommendation is still open—unacceptable action.

On April 14, 1993 the Safety Board made comments to the Office of the Secretary of Transportation (OST) in response to the proposed alcohol regulations. In this response, the Safety Board stated that; "studies suggest that a 4 hour abstinence period may be too short. The mean blood alcohol concentration (BAC) of alcohol positive persons in fatal accidents is in the 0.15 percent to 0.17 percent range, depending on transportation mode. This suggests that an abstinence period of longer than 8 hours before reporting to duty may enhance safety. While we would prefer a longer abstinence period, the Safety Board supports an 8 hour rule if it is consistently applied across all modes of transportation." We believe the abstinence period should be consistent across all modes and should be at least 8 hours.

In the same letter to OST, the Safety Board stated that; "The Safety Board believes that the proposed rule (now the final rule) setting 0.04 percent BAC as the offense level sends the wrong message about the permissibility of alcohol use in all modes of transportation. We believe that the only safe BAC is zero (0.00 percent) BAC." The rules in all modes should specify a zero BAC when reporting for duty to perform safety sensitive functions.

NTSB AUTOMATED DATA PROCESSING

Mr. PRICE. Your agency has developed a 5-year plan to improve its automated data processing capabilities. What are the remaining deficiencies in the Safety Board's information systems?

[The information follows:]

We feel that we have made good progress under the data processing plan that was implemented in fiscal year 1992. We have replaced an outdated mainframe computer and have equipped all of our staff with personal computers in the last two years. The major remaining objectives of our computer plan relate to improvements in the Board-wide computer network that serves both our headquarters facility, and also our nine regional and field offices. We do not yet have the full intra-agency electronic communications that we feel that we need to exchange data and information, and we do not yet have the capability to support inter-agency E-mail and other types of electronic communication. We are working to improve these aspects of our computer and data processing capabilities.

5-YEAR AUTOMATION PLAN

Mr. PRICE. Please provide an update on the Safety Board's anticipated progress in implementing the 5-year automation plan in fiscal years 1994 and 1995.

[The information follows:]

We have made more rapid progress on some aspects of our 5-year computer plan than we expected, largely because of rapid technological changes and price decreases for computer hardware. We were able, for example, to upgrade our mainframe computer ahead of schedule. We expect to upgrade the Local Area Networks (LANs) that support our regional offices, and to significantly improve the communication hardware and software that connects our headquarters and regional offices before the end of fiscal year 1995. These are the major remaining objectives of our 5-year plan.

COMPUTER HARDWARE AND SOFTWARE NEEDS

Mr. PRICE. Your OMB submission includes a request of \$275,000 for computer hardware and software that is not included in the President's budget. What will be the impact of not providing these resources in fiscal year 1995?

[The information follows:]

The fiscal year 1995 request included both planned upgrades to the Board's central computer facility and funding to develop high-speed electronic communications between our headquarters and regional office computer systems. The lack of funding in fiscal year 1995 will primarily limit the development of an effective Wide Area Network (WAN) capability. We will probably have to continue to use relatively low speed, low capacity, dial-up telephone connections to support electronic communications between regional offices and headquarters, for example. Similarly, we will probably not be able to develop a significant capability for interagency electronic communications, or access to the "information super highway".

WORKLOAD DATA

Mr. PRICE. Please provide any workload data you have for your Offices of Public Affairs, Congressional Relations, and General Counsel for fiscal years 1994 and 1995.

[The information follows:]

The Board's Offices of Congressional and Intergovernmental Relations and Public Affairs do not maintain specific workload data.

The Office of General Counsel anticipates preparing 270 opinion and orders for enforcement appeals, processing 150 deposition requests, and analyzing 70 financial filings during fiscal 1994, with a similar volume of activity for 1995. The office does not keep workload data on its remaining functions.

LITIGATION WORKLOAD DATA

Mr. PRICE. Please provide annual workload data regarding litigation addressed by the NTSB for fiscal years 1989 through 1994.

[The information follows:]

The National Transportation Safety Board (NTSB) has no direct litigating authority and is represented in court by the Department of Justice. As the Board is not

a regulatory agency and its accident reports do not impose legal obligations or liabilities, few of its actions are directly appealable to the judiciary. Further, NTSB opinions and orders in enforcement appeal cases, when appealed to the federal courts, are not defended by the Board, but are litigated by the parties. Our decisions are treated as would be the decisions of a lower court where the parties, not the initial court, will be the disputants on appeal. (There may be exceptions to this principle under the new provisions of the Federal Aviation Administration Civil Penalty Act of 1992.)

NTSB assists the Department of Justice in any matters which are litigated in our name. These cases would include tort suits against NTSB, enforcement of NTSB authority to require evidence and reports, and related challenges to the NTSB procedures or the provisions of the agency's statutory framework. Because of the sporadic nature of this type of litigation assistance, workload statistics are not kept. At present, there are five separate active proceedings in which the NTSB is involved in litigation.

CONFERENCES AND SEMINARS

Mr. PRICE. Please update the information regarding conferences and seminars that was included on pages 268 through 275 of last year's hearing record.

[The information follows:]

OFFICE OF AVIATION SAFETY
1993 Conferences/Seminars Attended

The Role of NTSB Meteorologists in Accident Investigation
 Aviation Weather Workshop
 Government-Industry Communications Workshop
 Human Factors Society Annual Meeting
 Air Crash Rescue and Recovery in a Water Environment
 Child Occupant Protection Conference
 International Society of Air Safety Investigators
 Aviation Psychology
 Flight Safety Foundation
 Aircrew Integrated Management Workshop
 Airbus Aircraft Integrated Management CRM
 International Cabin Safety Symposium
 Aviation Maintenance Technical Conference
 Runway Incursion Industry Update
 Embry Riddle Aeronautical University Advisory Seminar
 Volcanic Ash Seminar
 Aeronautical Repair Station Association
 Alaska Air Carrier Meeting
 Aviation Psychology
 International Conference on Ground Deicing of Aircraft
 International Experimental Aircraft Association
 European Civil Aviation Conference
 ALPA Air Safety Forum
 Intra-Governmental Workshop on Human Error
 Air Transport Association's Engineering, Maintenance and Materials Forum
 Conference of the American Meteorological Society
 International Conference on TCAS
 Government/Industry Conference on Aircraft Ground Deicing
 Civil Aeronautical Medical Institute symposium on OSHA Requirements
 Federal Women's Conference
 NASA/FAA Seminar on Automated Performance Measurement Systems
 Human Factors Society
 American Assoc. of Airport Executives National Airport Conference
 Conference on Child Occupant Protection

OFFICE OF RESEARCH AND ENGINEERING
1993 Conferences/Seminars Attended

Transportation Research Board Workshop
 FAA/NASA International Tailplane Icing Workshop
 International Symposium on Aviation Psychology
 "Corrosion 93" Conference
 Bureau of Explosives Association HazMat Seminar
 SAE Heavy Vehicle Rollover
 Older Driver/Pedestrian Conference
 System 1032 User's Conference
 SES Orientation

OFFICE OF SURFACE TRANSPORTATION SAFETY
1993 Conferences/Seminars Attended

Fishing Vessel Conference
 Society of Naval Architects and Marine Engineers
 Human Factors Society Annual Meeting
 NTSB/Japanese Safety Seminar
 Air Brake & Railroad Oper. Off. Tech. Conference
 American Railway Engineering Association Meeting of Bridge Engineers
 Silver State Train '92 Conference
 American Public Transportation Association '93 Annual Meeting
 Railroad/Highway Grade Crossing Safety Conference
 Norfolk Southern Railroad Annual Safety Seminar
 American Railway Engineers Association Annual Seminar
 American Railway Engineers Association Committee 18 Meeting
 Safety Recommendation Seminar - Norfolk Southern Railroad
 Reinventing Government Forum
 Florida Transportation Symposium
 International Symposium on Motor Carrier Transportation
 Commercial Vehicle Safety Alliance Conference
 International Association of Accident Reconstruction Specialists
 Society of Automotive Engineers Brake Colloquium
 "Safe Roads '93"
 Commercial Fishing Industry Vessel Safety Committee
 SeaTrade Cruise Shipping '93 Conference
 Fishing Industry Safety and Health Workshop
 Marine Accident Investigation International Forum
 International Cargo Handling Coordination Association XXI International
 Biennial Conference
 Great Lakes Maritime Conference
 Marine Index Annual Conference
 Offshore Technical Conference
 Fishing Expo
 American Bureau of Shipping
 Marine Log Tanker Legis. Conference
 Heavy Truck Conference
 Transportation Research Board
 Mid-West Gas Association
 AGA Annual Distribution Meeting
 Gas Pipe Technology Committee
 Texas Gas Association

FLIGHT ATTENDANT TRAINING

Mr. PRICE. Is the Safety Board satisfied with the progress the FAA has made during the past year in the area of flight attendant training and performance during emergency situations?

[The information follows:]

We are currently investigating a transport category air carrier accident and a commuter category accident in which we have some questions about flight attendant performance during the emergency situations. As part of these ongoing investigations, we are examining Federal Aviation Administration oversight of the flight attendant training programs of both the 121 and the 135 air carriers.

FLIGHT ATTENDANT SAFETY STUDY

Mr. PRICE. What recommendations from the flight attendant safety study remain open?

[The information follows:]

All 13 safety recommendations are in the "Open" status and five of them cited below are in the "Open-Unacceptable Response" status:

The Safety Board asked the FAA to update the proposed advisory circular (AC) on crewmember Cabin Safety Training to include the safety recommendations from this report and previous Safety Board comments on the notice of proposed rulemaking, and expedite the issuance of this AC that was published for comment at 52 FR 44664 on November 20, 1987. (A-92-066)

Although the FAA agreed with the intent of this recommendation and plans to include appropriate information in published materials other than the AC, the Board believes that an Advisory Circular is necessary since it would be accessible to those who can benefit most from information contained in it. The Board asked the FAA to reconsider its response position.

The Board also asked the FAA to ensure that flight attendant training programs include instruction on Human Performance of crewmembers (flight attendants and pilots) and passengers under stressful situations and on methods to compensate for such behavior. (A-92-068)

Although the FAA believes that current air carrier flight attendant training programs meet the intent of this recommendation, the Board is unconvinced that the intent of this recommendation is met in view of the examples of inappropriate behavior by some flight attendants during stressful situations. Furthermore, the Board believes that flight attendant training programs should include instruction on fear-effect, performance under stress, decisionmaking under stress and how to focus on correct procedures in stressful situations. The Board asked the FAA to reconsider its position.

The Board asked the FAA to require flight attendant hands-on proficiency drills for each type of airplane exit, and ensure that flight attendants are evaluated individually by an instructor and that a record is kept that they have performed and successfully completed such drills. (A-92-070)

While the FAA believes that current requirements concerning flight attendant training contained in 14 CFR 121.417 are adequate, the Board believes that its special investigation report on flight attendant training clearly establishes a need for an instructor to individually evaluate flight attendant performance on the proper operation of each airplane exit during hands-on proficiency drills. The Board asked the FAA to reconsider its position.

The Safety Board asked that the FAA assign separate cabin safety specialists to each major air carrier and to each FAA region. (A-92-073)

The FAA does not agree with this recommendation since all 14 CFR Part 121 air carriers currently have either a cabin safety specialist or a cabins safety focal point; Further, the FAA contends that many of these cabin safety focal points are located in the FAA Regional offices and are available to assist principal operations inspectors who are assigned to major air carriers. Nonetheless, the Board continues to believe that its special investigation report on flight attendant training establishes a need for the assignment of separate cabin safety specialists to each major air carrier and to each FAA region. The Board requested that the FAA reconsider its position.

The Safety Board recommended that the FAA review existing human factors research for the purpose of issuing guidance to principal operations inspectors on methods of evaluating training programs to ensure that flight attendants retain the skills and knowledge that are necessary in emergency situations. If the review of the research does not provide the needed information. The Board asked the FAA to establish a research program on flight attendants knowledge and skill retention. (A92-75)

The FAA did not agree with this recommendation because the interval between present flight attendant training sessions is adequate to ensure that flight attendants retain the skills and knowledge that are necessary in emergency situations. The FAA also replied that the aviation industry has many years of experience with this interval and finds no evidence that the interval should be changed, and the quality of the flight attendant training has historically produced flight attendants who function adequately in a full range of emergency situations. Because the FAA monitors flight attendant performance as part of the surveillance of the carriers and during recurrent training sessions, it is satisfied that flight attendants are trained at frequent intervals to retain the skills and knowledge necessary in emergency situations.

Nevertheless, although the FAA believes that the current flight attendant training program is adequate, the Board's special investigation on flight attendant training indicates that flight attendants have had problems with retention of knowledge and skills during emergency situations. Furthermore, without adequate testing and evaluation during training, the extent of retention is unknown until an actual emergency situation is encountered. Therefore, the Board asked the FAA to reconsider its position.

FOREIGN ACCIDENT INVESTIGATIONS

Mr. PRICE. The Safety Board is often asked by foreign governments to assist in the investigation of accidents involving U.S. designed aircraft. The Safety Board testified last year that these foreign investigations are increasing. How much was expended in the past three years in investigating/helping foreign governments with accidents that occur outside the U.S?

[The information follows:]

The Safety Board does not currently track in its budget the manpower resources expended on foreign investigations. The resources are expended in four general categories:

- (1) The Safety Board has averaged sending investigators overseas to the on scene investigations of about 8 to 10 cases per year.
- (2) The Safety Board sends investigators to sites in the U.S. in support of overseas investigations in about 10 to 12 cases per year. These cases involve conducting teardowns and inspections of U.S.-manufactured engines and other components at U.S. facilities.
- (3) The Safety Board laboratories conduct the readouts of cockpit voice (CVR) and flight data recorders (FDR) , provide metallurgical analyses, and develop aircraft performance or radar studies in support of investigations conducted by foreign governments each year. For example, in fiscal year 1993, the laboratories readout 14 CVR's, 19 FDR's, completed 7 metallurgical analyses, and issued 18 aircraft performance and/or radar studies related to overseas accidents.
- (4) The Safety Board provides non-travel-related support to investigations conducted by foreign governments for about 60 or more cases per year. The support involves such items as statistical analyses, aircraft records, historical records, aircraft performance analyses, and interactions between the foreign governments and U.S. manufacturers to support the investigations.

The Safety Board expended about \$77,000 for international investigation travel expenses of its teams in fiscal year 1993. The international investigation travel expenses for fiscal year 1992 were about \$71,000. The Safety Board did not track such expenses specifically in its budget for previous years; however, the costs very likely were less for those years, with the possible exception of 1985; the worst year for major accidents in international civil aviation history. These costs are expected to grow due to inflation and more cases.

There are several factors that have increased the Safety Board's activities related to foreign accident investigations. First, the ever-increasing numbers of U.S.-manufactured aircraft and engines operating overseas by foreign airlines have led to more accidents that involve U.S. interests. Any accident involving a U.S.-manufactured aircraft or engine raises concerns about the safety of the particular model aircraft, regardless of where it is operated. There is a strong need on the part of the U.S. airline industry operating the same model aircraft to learn about the circumstances of a foreign airline accident to prevent a similar accident. Similarly, the U.S. airframe and engine manufacturers have a

strong need to learn about the circumstances, so the appropriate safety actions can be taken to prevent another accident. On many occasions, the manufacturers are not able to participate actively without the leadership of the Safety Board's Accredited Representative because of a feeling of mistrust about the motives of the manufacturers on the part of foreign authorities. For example, when the China Southern Boeing 737-400 aircraft crashed in Guilin, China, last year, the engineers from Boeing and General Electric Aircraft Engines were not permitted access to the accident site of investigation information, until the Safety Board's Accredited Representative arrived at the site and offered to oversee the U.S. team. This situation occurs often and requires that the Safety Board's investigator facilitate access of the U.S. team to the investigation.

Secondly, as the result of the three-week accident investigation meeting in Montreal at the International Civil Aviation Organization (ICAO) in February 1992 (AIG/92) at which over 75 countries and 300 officials participated, significant revisions were proposed to Annex 13 to ICAO, which contains the Standards and Recommended Practices for international civil aviation accident investigation. Those revisions have now been agreed to by all Members of ICAO and will take effect in November 1994.

In general, the revisions to Annex 13 involve many new Standards that provide both rights and obligations on States of Registry, Operator, and Manufacture. The new "rights" involve the ability of States to participate more often in investigations involving their interests, such as the investigation authorities who oversee foreign-manufactured aircraft (Airbus, Saab, Jetstream, CASA, Embraer, etc.) that crash in the U.S., and those accidents overseas involving U.S. interests that our industry wishes to get involved in. The new "obligations" include the fact that other investigative authorities may request that the U.S. participate in their investigations involving our aircraft or engines that previously were elective. There also are more specific requirements for notifications to other States of more accidents and "serious incidents" that will increase Safety Board workload, there are more specific "rights" of other States that wish to become involved in our investigations, and there are more specific requirements for "consultation" between States on the contents of the final accident reports. Not all of the increased rights and obligations will involve travel expenses; however, increased manpower resources will be involved.

The U.S. delegation to ICAO AIG/92 meeting consisted of FAA and all major U.S. aviation interests, including Boeing, General Electric, Pratt & Whitney, Aircraft Industries Association, General Aviation and Helicopter Associations, Air Transport Association. The U.S. positions at the AIG/92 meeting for revisions to Annex 13 supported many of the new Annex 13 provisions because they were supportive of U.S. aviation

safety interests, as well as economic interests for the U.S. industry and U.S. foreign policy interests. The U.S. civil aviation industry relies heavily on the oversight and coordination of international accident investigation activities by the Safety Board investigators. If political or economic forces lead to adverse reflections on U.S. products, the safety and economic impact could be significant.

In summary, both travel and manpower costs have increased for Safety Board activities involving international accident investigations in the past few years. There are some factors that can be evaluated for reductions in costs; however, the growth of sales of U.S. products overseas and the increased international interest in any airline accident, where ever it occurs, raises concerns on the part of the U.S. traveling public and aviation industry that can have adverse effects on both safety and economic interests of the U.S.

ACCIDENT INVESTIGATION REIMBURSEMENT

Mr. PRICE. Have you considered any arrangements with foreign countries for seeking reimbursement for such assistance?

[The information follows:]

There have been occasions over the years in which the Safety Board has been requested to provide support to a foreign government on an investigation or safety-related matter that did not have any direct or apparent safety payoff to the Safety Board or U.S. aviation industry interests. In certain of these cases, the Safety Board has accepted "in kind" reimbursement, such as airline travel and lodging and meal expenses, in accordance with applicable government regulations, to attend such activities. Most often, these cases involve non-investigative matters, such as seminars or training programs for other governments. We have not attempted to set a fee or collect for the specialists' time.

There are other cases with no apparent safety payoff that were directly related to accident investigations for which we have not accepted expenses or attempted to charge for the services. For example, the Safety Board has been requested to conduct readouts of recorders from foreign airlines operating foreign-manufactured aircraft, such as Fokkers, because the Dutch do not have the capability to conduct such readouts. In a few instances, we have declined to conduct the readouts and other governments did the work. The Safety Board does not have, nor has it requested, the legislative authority to charge for and retain any revenue which might be gained through reimbursements.

The majority of the foreign cases for which the Safety Board incurs manpower and travel costs involve accidents and safety-related matters that involve cases in which it is the interest of the Safety Board and the U.S. aviation industry to participate, free of charge. Furthermore, there are significant obligations on the part of the U.S. connected with the Convention of International Civil Aviation administered by ICAO under Annex 13 that require Safety Board involvement. Lastly, there are significant safety concerns related to many overseas accidents that necessitate the participation of the Safety Board in such cases.

CHINA EASTERN AIRLINES ACCIDENT

Mr. PRICE. What was the probable cause of the April 6, 1993, China Eastern Airlines MD-11 inadvertent in-flight slat deployment?

[The information follows:]

The National Transportation Safety Board determined that the probable cause of the aviation accident that occurred April 6, 1993, involving China Eastern Airlines was the inadequate design of the flap/slat actuation handle by the Douglas Aircraft Company that allowed the handle to be easily and inadvertently dislodged from the UP/RET position, thereby causing extension of the leading edge slats during cruise flight. The Captain's attempt to recover from the slat extension, given the reduced longitudinal stability and the associated light control force characteristics of the MD-11 in cruise flight, led to several violent pitch oscillations.

Contributing to the violence of the pitch oscillations was the lack of specific pilot training in recovery from high altitude upsets, and the influence of the stall warning system on the captain's control responses. Contributing to the severity of the injuries was the lack of seat restraint usage by the occupants.

CHINA EASTERN AIRLINES RECOMMENDATIONS

Mr. PRICE. Please list the major recommendations issued in your report on the China Eastern Airlines and indicate whether those recommendations have been made before.

[The information follows:]

On November 10, 1993, the National Transportation Safety Board issued the following safety recommendations to the Federal Aviation Administration regarding the aviation accident that occurred April 16, 1993, involving China Eastern Airlines. These safety recommendations have not previously been issued.

Require Douglas Aircraft Company to provide data needed to upgrade MD-11 training simulators to accurately represent the aircraft's longitudinal stability and control characteristics for high altitude cruise flight; and to develop specific guidance and simulator scenarios to train pilots in optimum techniques for the recovery from high altitude upsets, including those accompanied by stall warning. (Class II, Priority Action) (A-93-143)

Require operators to provide specific training for the recovery from high altitude upsets, including those accompanied by stall warning. (Class II, Priority Action) (A-93-144)

Establish high altitude stall margins for MD-11 airplanes in order to limit the effects of high altitude pitch upsets. (Class II, Priority Action) (A-93-145)

Evaluate the dynamics of the MD-11 stall warning system to ensure that the "on" and "off" logic are consistent with providing the pilot timely information. (Class II, Priority Action) (A-93-146)

Conduct a thorough review of the MD-11 high altitude cruise longitudinal stability and control characteristics, stall warning margins, and stall buffet susceptibility to ensure that pilot responses to routine pitch attitude upsets do not result in hazardous pitch oscillations, structural damage, or any other condition that could lead to unsafe flight. (Class II, Priority Action) (A-93-147)

Require that fire-blocking materials identified as Testori 0200-316 and 0206-100 be replaced with new materials that meet the fire retardant requirements of 14 CFR 25.853. (Class II, Priority Action) (A-93-148)

Amend 14 CFR 25.853 to include a requirement to test the fire-retardant properties of fire blocking materials after they have been subjected to in-service wear. (Class II, Priority Action) (A-93-149)

Conduct research upon the effects of actual in-service wear on the continued airworthiness of fire-blocking materials. Based on the findings, require periodic actual in-service tests of fire-blocking materials to verify compliance with the requirements of

Inform other certification authorities of the findings regarding the deterioration of the fire-blocking materials noted in this accident investigation with the view toward replacing them, as required. (Class II, Priority Action) (A-93-151)

Direct principal maintenance inspectors to inform operators of the need to periodically inspect fire-blocking materials for wear and damage and to replace defective materials. (Class II, Priority Action) (A-93-152)

Mr. PRICE. What actions has the FAA and the manufacturer taken to respond to your recommendations regarding China Eastern Airlines? Were those actions timely?

[The information follows:]

The Federal Aviation Administration (FAA) responded to the China Eastern safety recommendations on February 7, 1994. Although the Safety Board has not formally classified the status of the response, it appears that the FAA response agrees with the safety recommendations, with the exception of safety recommendations A-93-148 and 149.

Safety recommendations A-93-148 and 149 concern fire-blocking materials. The FAA stated that it is not certain that the degradation of this material is a fleetwide problem as opposed to an isolated maintenance problem. The FAA will be evaluating results of research carried out in accordance with safety recommendation A-93-150 to determine whether or not replacement of these materials on a fleetwide basis is called for.

DC-10 AIRPLANE BRAKES

Mr. PRICE. The justifications indicate that the FAA has declined to address certain known brake related safety deficiencies in the DC-10 and possibly other transport category airplanes. What is the rationale for the FAA's decision and what other recommendations from the Safety Board's study of inadequacies in transport airplane brake certification requirements are still open?

[The information follows:]

The Federal Aviation Administration (FAA) has required manufacturers to determine brake wear limits that will allow brakes to perform throughout a high energy rejected takeoff. In addition, improved brake testing procedures have been implemented. Requirements have been improved for newly certificated airplanes. Accelerate/stop distances for newly certificated airplanes will be established with worn brake performance data. However, the FAA has refused to revise the accelerate/stop distance data for old airplanes. A DC-10-10 airplane still may overrun the runway by about 1,200 feet during a maximum energy, runway limited rejected takeoff.

PIPER CHEYENE SAFETY RECOMMENDATIONS

Mr. PRICE. What steps has the FAA taken to respond to the Safety Board's August 31, 1993, urgent recommendations that the FAA issue an airworthiness directive applicable to all Piper Cheyenne PA-31T series turboprop airplanes, requiring an inspection of the elevator control tube assembly and rod end bearing for evidence of cracks or excessive wear?

[The information follows:]

The Federal Aviation Administration (FAA) responded to safety recommendations A-93-110 through -113 on November 23, 1993. The FAA issued airworthiness directive 93-24-02, which calls for a series of inspections to prevent elevator control problems that could lead to loss of airplane control. This action addressed safety recommendations A-93-110 and A-93-112. The FAA also advised that the Piper Aircraft Corporation was revising the PA-31 series maintenance manuals to incorporate requirements for periodic inspection of primary and secondary flight surface control tube assemblies and rod end bearings for evidence of cracks or excessive wear. Piper will include in its revision a specific inspection requirement of the elevator control tube assembly area as well as emphasizing inspection of all flight control connections at 100-hour intervals. This action addressed safety recommendations A-93-113.

It is the Safety Board's opinion that safety recommendation A-93-111 was not addressed in the November 23, 1993, response and it is classified "Open—Await Response."

PIPER AIRPLANE RECOMMENDATIONS

Mr. PRICE. The justifications indicate that the FAA has decided not to issue an emergency air worthiness directive concerning the inspection and repair of wing forward spar fuselage attachment assemblies on Piper PA-25 airplanes. What is the FAA's rationale and why does the Safety Board disagree with it?

[The information follows:]

Safety recommendation A-92-36 dated, July 16, 1992, asked the Federal Aviation Administration (FAA) to issue an airworthiness directive (AD) requiring immediate and periodic inspections for corrosion and cracking and repair of the wing forward spar attachment assemblies. Although this safety recommendation was classified urgent by the Safety Board, the FAA elected to consider issuing a notice of proposed rulemaking (NPRM) rather than an emergency AD. The FAA did not explain why a NPRM, which is not an immediate action item, was chosen. Since corrosion and cracking of these fittings could result in wing loss (as evidenced by the crash precipitating safety recommendation A-92-36), the Safety Board on October 9, 1992, classified this safety recommendation as "Open—Unacceptable Response" and urged the FAA to immediately issue an Emergency AD. It was not until September 8, 1993, that the FAA issued NPRM (Docket No. 92-CE-63-AD) in response to safety recommendation A-92-36.

On May 21, 1993, another PA-25 crashed after the wing separated in flight. Fatigue cracking in the wing forward spar fuselage attachment fitting precipitated the wing loss. On October 18, 1993, the Safety Board issued safety recommendation A-93-126 classifying safety recommendation A-92-36 as "Closed—Unacceptable Action" and recommending again that the FAA issue an emergency airworthiness directive pertaining to the inspection and repair of wing forward spar fuselage attachment assemblies on Piper PA-25 airplanes.

The FAA issued priority letter airworthiness directive 93-CE-56-AD on October 28, 1993, which mandated initial and immediate inspection of the fittings. The FAA indicated that at a later date it will issue a supplementary NPRM to propose retaining the initial inspection and adding a repetitive inspection proposed in NPRM Docket No. 92-CE-63-AD. Safety recommendation A-92-36 is presently classified "Open—Acceptable Alternative Action."

FLYING WHILE INTOXICATED LAWS

Mr. PRICE. In 1992, the Safety Board completed a study that indicated that 35 of 50 States lack comprehensive flying while intoxicated laws. What progress has been made on the enactment of comprehensive State laws which include implied consent provisions, establish maximum blood alcohol concentrations, and provide for the reporting of test findings to the FAA?

[The information follows:]

Four states (Arkansas, Maine, Missouri and Utah) enacted flying while under the influence of alcohol legislation generally consistent with Board recommendations in 1993. In Maine, the law was enacted as a direct response to the Board's recommendation letter to the State's legislative leaders. Reportedly, after receiving the letter, Maine House Speaker John Martin had a bill drafted and introduced it himself, and the measure was adopted without controversy.

There has been less attention to flying while intoxicated legislation in 1994. As of early March, the Safety Board had identified only two states, Tennessee and West Virginia, in which bills had been introduced. Additionally, bills introduced in 1993 in two States (Kansas and Pennsylvania) were carried over and may be considered this year. The prospects for these bills' outcomes were unclear.

AIRFRAME ICING RECOMMENDATIONS

Mr. PRICE. Please provide a summary of those Safety Board safety recommendations to the FAA addressing airframe icing which have an "Open—Unacceptable Response" status.

[The information follows:]

The National Transportation Safety Board has four airframe icing safety recommendations in an "Open Unacceptable" status. Below is a summary of those recommendations.

In 1980 the National Transportation Safety Board issued a Safety Report on the hazard of aircraft structural icing, including the physical aspects of the problem as it relates to aircraft, methods of avoidance and/or prevention, the adequacy of icing forecasts, and the certification of aircraft for flight into known icing conditions. On September 24, 1981, safety recommendation A-81-116 was issued to the Federal Aviation Administration (FAA), and remains in an "Open Unacceptable" status.

Review the icing criteria published in 14 CFR 25 in light of both recent research into aircraft ice accretion under varying conditions of liquid water content, drop size distribution, and temperature, and recent developments in both the design and use of aircraft; and expand the certification envelope to include freezing rain and mixed water droplet/ice crystal conditions, as necessary.

On February 17, 1991, Ryan International Airlines flight 590, which was contracted to carry mail for the U.S. Postal Service, crashed while taking off from Cleveland-Hopkins International Airport. Between 1968 and 1987, there were four accidents involving DC-9 series 10 airplanes in which there was a loss of control shortly after takeoff. In all cases, the investigation showed that the airplanes accelerated normally and reached airspeeds at which they should have been capable of establishing and sustaining a safe climb. Instead, all were observed to enter steep roll attitudes and descend to the ground. Also, in all of these accidents, witnesses reported, and the sounds on the cockpit voice recorders confirmed, that engine compressor surges occurred as the airplanes descended. On December 11, 1991, safety recommendations A-91-126 and -127 were issued to the FAA and remain in an "Open Unacceptable" status.

Evaluate the need for actions as described in safety recommendations A-91-123 and A-91-125 for other transport category turbojet airplanes that do not have leading edge devices and are particularly susceptible to flight control problems arising from small amounts of frost, ice or snow on the wings.

Evaluate a procedure to use the maximum rotation speed during takeoff that will retain the presently required end of runway and climb gradient safety margins when operating on runways that exceed the minimum takeoff runway length required. Require operators to provide maximum rotation speed information to DC-9 series 10 flightcrews for use in winter operations.

On January 30, 1991, a British Aerospace Jetstream BA-3101 airplane, operated under 14 CFR Part 135 as USAir Express flight 4743, crashed on its final descent and was destroyed. On July 22, 1992, safety recommendations A-92-062 and -065 were issued to the FAA and remain in an "Open Unacceptable" status.

Require British Aerospace, Inc. to show, by flight test, that the limitation to flaps 35 degrees, currently incorporated into all VA-3200 airplanes and available in kit form for installation on BA-3100 airplanes, provides an adequate safety margin against tailplane stall in icing conditions; and if the margin is adequate, require operators of BA-3100 airplanes to install the flap extension limitation modification on the airplane. If the margin is inadequate, require appropriate changes to assure its adequacy.

Issue an airworthiness directive applicable to two-pilot airplanes operating under the provisions of 14 CFR Part 135 that use leading edge ice detection lights, such as the BA-3100 and BA-3200, requiring that leading edge ice detection lights be installed to illuminate both wings. Require that models of these airplanes requiring two pilots be retrofitted with this modification.

(A-92-062 is an Unacceptable status because operators were not required to install the flap extension limitation modification on the airplane. It should be noted, however, that the flight test was completed, and information has been added to the flight manual that tells pilots to use 20 degrees of flap if the airplane has not been modified and if there is any visible sign of ice.)

GUANTANAMO BAY AVIATION ACCIDENT

Mr. PRICE. The Safety Board held public hearings in January 1994 on the crash of an American International Airways DC-8 as part of an investigation of supplemental air carriers and Defense Department contract operations. Please summarize the safety issues highlighted at the hearing.

[The information follows:]

The safety issues associated with the investigation and public hearing in connection with the American International Airways DC-8 accident at Guantanamo Bay, Cuba included: Pilot training and procedures, cockpit crew resource management, airline management and oversight, Federal Aviation Administration surveillance, Department of Defense contract carrier oversight, and flightcrew fatigue. The final report of the investigation will be completed and issued in the next two months.

PEGASUS ROCKET SPECIAL INVESTIGATION

Mr. PRICE. Please provide a summary of your findings and recommendations regarding the February 9, 1993, launch of the Orbital Sciences Corporation Pegasus Rocket.

[The information follows:]

On February 9, 1993, about 9:30 a.m. eastern standard time, the launch sequence of an Orbital Sciences Corporation (OSC) Pegasus expendable launch vehicle was aborted by the National Aeronautics and Space Administration range safety officer, in accordance with a previously established launch constraint. Several seconds later, the launch sequence was reinitiated by the Orbital Sciences Corporation test conductor, and the missile separated uneventfully from its carrier aircraft. The ignition and staging of the Pegasus and its subsequent deployment of two satellites into low earth orbit were also uneventful. There were no injuries to personnel involved in the mission and no damage to mission assets.

The Safety Board concluded that the launch anomaly was triggered by confusion over the rule for aborting the mission because of a momentary malfunction in the telemetry system monitoring devices to destroy the vehicle if necessary. The Board also concluded that the rule was "overly restrictive" and not fully understood. Matters were complicated by two different organization cultures working in the mission control room -- Wallops Flight Facility on one hand, and OSC and NASA Dryden on the other -- which did not have enough time to integrate their goals and ways of doing business.

The Board found that the channels of communications and standard intercom protocol in the mission control room were improperly planned, and that most likely fatigue, plus other factors, adversely affected the performances of some critical personnel during the launch. Six people key to the launch decision were found to have had less than four hours sleep in the 26 hours prior to the Pegasus' deployment.

Finding that the dress rehearsal for the launch was conducted in a disjointed and hurried manner, the Safety Board also said that one of the most inexplicable aspects of the launch was the lack of common safety related documents and launch checklists.

On August 17, 1993, the National Transportation Safety Board issued the following safety recommendations:

-- to the Department of Transportation

Require that, as a condition for license for commercial space launches, as a minimum, the company applying for the license include in its license application:

- o Clearly delineated statements of authority for all parties and key individuals involved in the launch, including individuals (or positions) authorized to abort the mission, hold the countdown, or resume the countdown, following a hold. (Class II, Priority Action) (A-93-87)

o Specific details and criteria for launch readiness reviews and launch dress rehearsals. (Class II, Priority Action) (A-93-88)

o A plan for the approval of checklists for the launch, including a provision for ensuring the currency and consistency of each participant's checklist during the dress rehearsal for the launch. (Class II, Priority Action) (A-93-89)

o A provision for mandatory rest periods before the launch for key participants that provide for an adequate and specified time period for uninterrupted sleep. The quantitative criteria for such rest periods should be developed by appropriate human performance experts to ensure applicability to the assigned tasks. (Class II, Priority Action) (A-93-90)

o A communications plan for:

1. a provision that interphone or other communication assignments be apportioned to allow decision makers from each party direct access to the decision makers of other parties and that proper radio-telephone communication phraseology is used, and
2. a provision that key participants in the launch monitor a common intercom channel at an established point in the countdown and that these participants continue to monitor this channel during the final countdown sequence and after launch. (Class II, Priority Action) (A-93-91)

o A plan for approval of a safety directive or safety notebook for the launch to emphasize the safety aspects of the launch operation and to clearly list and consolidate mission constraints, rules, and special launch rules, as well as abort procedures. (Class II, Priority Action) (A-93-92)

o For launches from remote sites or aircraft, a plan to assure that essential communications interruptions resulting from antenna patterns are improbable. Practical considerations should be given for tolerable interruptions that may be associated with transient conditions, such as aircraft maneuvers. (Class II, Priority Action) (A-93-93)

-- to the National Aeronautics and Space Administration

o Study the feasibility of installing at the Wallops Flight Facility indicator lights on communications consoles that illuminate whenever an intercom channel is in use. (Class II, Priority Action) (A-93-94)

- o Study the feasibility of allowing the Range Safety Officer direct radio access to the launch airplane for Pegasus launches. (Class II, Priority Action) (A-93-95)

- o Test the operability of all recording systems prior to each launch from the Wallops Flight Facility. (Class II, Priority Action) (A-93-96)

-- to the Orbital Sciences Corporation

Require, as part of ELV launch planning documentation:

- o Clearly delineated statements of authority for all parties and key individuals involved in the launch, including individuals (or positions) authorized to abort the mission, hold the countdown, or resume the countdown, following a hold. (Class II, Priority Action) (A-93-97)

- o Specific details and criteria for launch readiness reviews and dress rehearsals. (Class II, Priority Action) (A-93-98)

- o Comprehensive, previously reviewed, checklists for the launch, including a provision for ensuring the currency and consistency of each participant's checklist during the dress rehearsal for the launch. (Class II, Priority Action) (A-93-99)

- o Mandatory rest periods before the launch for key participants that provide for an adequate and specified time period for uninterrupted sleep. The quantitative criteria for such rest periods should be developed by appropriate human performance experts to ensure applicability to the assigned tasks. (Class II, Priority Action) (A-93-100)

- o A communications plan that would include, at a minimum:

1. a provision that interphone or other communication assignments be apportioned to allow decision makers from each party direct access to the decision makers of other parties and that proper radio-telephone communication phraseology are used, and
2. a provision that key participants in the launch monitor a common intercom channel at an established point in the countdown and that these participants continue to monitor this channel during the final countdown sequence and after launch. (Class II, Priority Action) (A-93-101)

o A safety directive or safety notebook for the launch to emphasize the safety aspects of the launch operation and to clearly list and consolidate mission constraints, rules, and special launch rules, as well as abort procedures. (Class II, Priority Action) (A-93-102)

o For launches from remote sites or aircraft, a plan to assure that essential communications interruptions resulting from antenna patterns are improbable. Practical consideration should be given for tolerable interruptions that may be associated with transient conditions such as aircraft maneuvers. (Class II, Priority Action) (A-93-103)

TCAS TRAINING STANDARDS

Mr. PRICE. In a November 1993 incident at Chicago O'Hare International Airport, the crew of a Continental 727 indicated that they were distracted by traffic alert and collision avoidance (TCAS) alarms that resulted in a wheels-up landing. What progress has the FAA made in improving TCAS training standards for flight crews and air traffic controllers?

[The information follows:]

On March 25, 1993, the Safety Board issued safety recommendations to the Federal Aviation Administration (FAA) that urged TCAS flight simulator training for flightcrews during initial and recurrent training. Regarding TCAS training for controllers, the Safety Board also asked the FAA to provide all radar certified controllers with a thorough and comprehensive formal briefing that explains the operations of TCAS and flightcrews responsibilities in responding to alerts. In their response of August 16, 1993, the FAA advised that they were conducting an audit of air carriers to determine to what extent simulators and training devices are being used. Irrespective of the findings from this audit, the Safety Board believes this training should be mandatory and that regulatory action is needed. The FAA's response has been classified as, "Open—Await Response."

The FAA's action toward TCAS training for controllers has been more positive. The FAA has developed two training videos for the air traffic control workforce. One video explains TCAS operation in the terminal environment and the other video explains TCAS operations in the en route environment. They have also developed an FAA Academy training course and an annual refresher course. The Safety Board has classified the FAA's actions as, "Open—Acceptable Response."

DIGITAL COCKPIT VOICE RECORDERS

Mr. PRICE. A digital cockpit voice recorder was on board the Express Airlines 11 Jetstream turboprop which crashed in December 1993. What is the status of the use of digital cockpit voice recorders on major air carriers and commuter aircraft? How has this advanced technology impacted your aviation investigations and what are the impediments to increased use of this technology among the major air carriers and commuter aircraft?

[The information follows:]

The use of digital technology in cockpit voice recorders (CVR) has increased dramatically in the last year, especially in the smaller commuter aircraft. The use of digital recorders as a replacement for older tape machines has also increased. Some of the larger airlines have programs under way to systematically replace the older tape CVR with no-maintenance solid state recorders. They are finding that the increased cost of the unit is justified by the cost savings realized in maintaining the units.

The Safety Board is encouraging the replacement of older tape machines with the new solid state recorders. Most of solid state units are designed to the tougher survivability standards recently developed by the international accident investigation community. The recent Express Airlines Jetstream accident in Columbus, Ohio is a good illustration of the advantage of the solid state recorders. The post-crash fire was of such intensity that the Safety Board feels that a tape CVR might not have survived the intense heat.

AVIATION SAFETY RECOMMENDATIONS

Mr. PRICE. Please provide the three highest priority safety recommendations that you have made in the aviation area that remain in open status, including the nature of the recommendation and the date it was first made.

[The information follows:]

1.

Recommendation Number:	A-87-98
Date Issued:	July 27, 1987
Status:	Open--Acceptable

The NTSB recommends that the FAA: Take expedited action to add visual flight rules conflict alert (Mode C Intruder) logic to automated radar terminal system (ARTS) computers as an interim measure to the ultimate implementation of the advanced automation system (ASS)2.

2.

Recommendation Number:	A-89-67
Date Issued:	July 21, 1989
Status:	Open--Acceptable

The NTSB recommends that the FAA: Require that all turbojet transport category airplanes certificated in the future, receive full scale structural fatigue testing to a minimum of two times the projected economic service life. Also require that all currently certificated turbojet transport category airplanes that have not been fatigue tested to two lifetimes, be subjected to such testing. As a result of this testing and subsequent inspection and analysis, require manufacturers to identify structure susceptible to multiple site damage and adopt inspection programs appropriate for the detection of such damage.

3.

Recommendation Number:	A-91-112
Date Issued:	December 3, 1991
Status:	Open--Acceptable

The NTSB recommends that the FAA: Evaluate and implement, as appropriate, suitable means for enhancing the conspicuity of aircraft on airport surfaces during night or periods of reduced visibility. Include in this effort measures, such as the displacement of an aircraft away from the runway centerline, where applicable, and the use of conspicuity enhancements such as high-intensity strobe lighting and logo lighting by aircraft on active runways, and encourage operators of airplanes certificated prior to September 1, 1977, to upgrade their airplanes to the present higher intensity standards for anticollision light installations.

FAA SAFETY RECOMMENDATIONS IMPLEMENTED

Mr. PRICE. What percentage of the Safety Board's recommendations does the FAA actually implement?

[The information follows:]

Using the "Rate of Acceptance" measure, those recommendations closed as acceptable divided by all those closed, the FAA has a 76.75% Rate of Acceptance—2594 classified as closed, with 1991 classified as closed with some form of acceptable action noted.

FAA SAFETY RECOMMENDATIONS

Mr. PRICE. Of those recommendations that the FAA declines to implement, what reasons do FAA officials give for not implementing such actions?

[The information follows:]

The Federal Aviation Administration (FAA) must perform cost/benefit analyses on most actions taken. A large percentage of the Safety Board's recommendations are developed after only one accident as justification. Based on these circumstances, when the FAA declines to implement a Board recommended action, it is generally based on the lack of benefit to be derived from a single point correction.

Also, sometimes there is a genuine and honest difference of a opinion over the need for a safety recommendation's implementation.

Mr. PRICE. How often does the FAA cite the potential negative effects of implementing your recommendations as a reason for not implementing them?

[The information follows:]

The Federal Aviation Administration (FAA) does not often cite negative effects of implementing a National Transportation Safety Board safety recommendation as a reason for not following through with implementation. There have been a few instances where the Board has recommended some non-destructive testing procedure that would require the dismantling and rebuilding of an aircraft system; and the FAA has stated its belief that the "take apart/rebuild" activities might induce more problems than might have been there in the first place. This has happened only 2 or 3 times in the 25 year history of the Board.

AIR CARRIER ACCIDENT INVESTIGATIONS

Mr. PRICE. Please insert for the record the findings and recommendations of each major air carrier accident investigation completed in 1993.

[The information follows:]

USAir flight 405
LaGuardia Airport
Flushing, New York
March 22, 1992

On March 22, 1992, about 9:35 p.m. eastern standard time, a Fokker 28-400, operating as USAir flight 405, from Jacksonville, Florida, to Cleveland, Ohio, with a stopover at LaGuardia Airport, crashed during an attempted takeoff from runway 13 at LaGuardia Airport, Flushing, New York.

The National Transportation Safety Board determined that the probable causes of this accident were the failure of the airline industry and the Federal Aviation Administration to provide flightcrews with procedures, requirements, and criteria compatible with departure delays in conditions conducive to airframe icing and the decision by the flightcrew to take off without positive assurance that the airplane's wings were free of ice accumulation after 35 minutes of exposure to precipitation following deicing. The ice contamination on the wings resulted in an aerodynamic stall and loss of control after liftoff.

Contributing to the cause of the accident were the inappropriate procedures used by, and inadequate coordination between, the flightcrew that led to a takeoff rotation at a lower than prescribed air speed.

As a result of this accident, the National Transportation Safety Board issued the following safety recommendations:

-- to the Federal Aviation Administration:

If gate holds are required to limit deicing fluid holdover time, encourage air traffic control (ATC) to initiate the gate holds as soon as a deicing operation begins rather than after delays have exceeded 15 minutes, as in the current air traffic control definition of gate hold. (Class II, Priority Action) (A-93-19)

Where deicing operations are conducted away from the departure runway, report taxi delays in conditions conducive to airframe icing in increments that are less than 15 minutes to provide more realistic and useful reports to dispatchers and flightcrews. (Class II, Priority Action) (A-93-20)

Require that flight crewmembers and appropriate ground personnel responsible for the inspection of transport-category airplanes for wing contamination receive specific periodic training that will illustrate what contamination looks like and feels like on a wing and the amount of contamination that is detectable under different light conditions. (Class II, Priority Action) (A-93-21)

Study the effects on performance of swept-wing turbojet airplanes when specific amounts of air speed are added to the computed rotation speed (delayed rotation) during takeoffs when wing contamination is possible. (Class II, Priority Action) (A-93-22)

Require Fokker to determine how takeoff performance and stall margin would be affected by using a lower initial target pitch attitude on F-28 and F-100 airplanes in the event that undetected upper wing ice contamination is present, and change the normal operating procedures if takeoff performance requirements can be met while the stall margin is improved. (Class II, Priority Action) (A-93-23)

In conjunction with the National Aeronautics and Space Administration, establish a wind tunnel or flight test program to study the aerodynamic degradation of both nonslatted and slatted airplane wings that have upper surface contamination. The study should be sufficient to define lift, draft and pitching moment changes related to ice contamination. (Class II, Priority Action) (A-93-24)

In conjunction with the National Aeronautics and Space Administration, determine the differences, if any, in effects on takeoff performance and stall margin when upper wing ice contamination is present on slatted and nonslatted airplanes; include consideration of operational and aerodynamic factors that may explain the disproportionate number of takeoff icing accidents of nonslatted airplanes. (Class II, Priority Action) (A-93-25)

Require airlines to establish a way to inform flightcrews of the type of fluid and mixture used, the current moisture accumulation rate, and the available holdover time. (Class II, Priority Action) (A-93-26)

Thoroughly research the effects of Type II fluids on runway surface friction coefficients to ensure that its use does not degrade airplane traction and braking beyond safe limits, and publish guidelines for the use of Type II fluids by airport operators. (Class II, Priority Action) (A-93-27)

Require that all airports, which might experience freezing conditions and that are certified under Title 14 CFR 139, establish deicing plans for approval. (Class II, Priority Action) (A-93-28)

Study the feasibility of building a frangible ILS antenna array for LaGuardia Airport. (Class II, Priority Action) (A-93-29)

Review Fokker 28-4000 passenger safety briefing cards to ensure that they clearly and accurately depict the operation of the two types of forward cabin doors in both their normal and emergency modes and that they describe clearly and accurately how to remove the overwing emergency exit handle cover. (Class II, Priority Action) (A-93-30)

-- to the Port Authority of New York and New Jersey:

Expedite the replacement of the emergency telephone system between the air traffic control tower and ARFF units at LaGuardia Airport. (Class II, Priority Action) (A-93-31)

Modify or replace all pump houses adjacent to runway 13/31 so that they are not obstructions to airplanes. (Class II, Priority Action) (A-93-32)

-- to the Department of Transportation, in cooperation with the Federal Emergency Management Agency, the National Fire Protection Association, and the American Association of Airport Executives:

Recommend a review of emergency plans to include contingencies for applying cardiopulmonary resuscitation (CPR) techniques as soon as a sufficient number of trained personnel arrive at a mass casualty/triage incident. Emphasis should be placed on attempting CPR regardless of whether vital signs are present, especially when cold water immersion/near drowning is involved and where traumatic injuries may not indicate death. (Class II, Priority Action) (A-93-33)

-- to the New York City Health and Hospitals Corporation:

Review and evaluate, in concert with other New York City emergency response agencies, the emergency medical response to the crash of USAir flight 405 in order to improve agency coordination efforts and to reduce transportation times or injured persons from LaGuardia Airport to area hospitals. (Class II, Priority Action) (A-93-34)

Scenic Air Tours flight 22
Maui, Hawaii
April 22, 1992

On April 22, 1992 about 3:53 Hawaiian Standard Time, Scenic Air Tours flight 22 collided with mountainous terrain on the Island of Maui, Hawaii, while on an air tour flight from Hilo, Hawaii, to Honolulu, Hawaii.

The National Transportation Safety Board determined that the probable cause of the accident was the captain's decision to continue visual flight into instrument meteorological conditions that obscured rising mountainous terrain and his failure to properly use available navigational information to remain clear of the Island of Maui.

Contributing to the accident was the failure of Scenic Air Tours to conduct substantive pilot preemployment background screening, and the failure of the Federal Aviation Administration to require commercial operators to conduct substantive pilot preemployment screening.

As a result of this accident, the National Transportation Safety Board issued the following safety recommendations:

-- to the Federal Aviation Administration

Revise the Federal Aviation Regulations as needed to create a specific classification for, and operating rules governing, commercial air tour operators based on the complexity of flight operations, aircraft flown, flight frequency, number of passengers carried, air traffic densities in the areas of operation, and other relevant factors. (Class II, Priority Action) (A-93-8)

Establish comprehensive Operations Specifications and Operations Manual requirements for the certification of commercial air tour operators under a new or revised regulatory category. (Class II, Priority Action) (A-93-9)

Identify airspace which warrants special protection due to the presence of commercial air tour operations. Create special operating rules for such airspace to reduce the potential for midair collisions and other accidents commensurate with meteorological and terrain considerations. (Class II, Priority Action) (A-93-10)

Ensure that the regulatory basis and surveillance resources are in place to oversee the operations, equipment, airmen, and airspace associated with any selective attention directed toward commercial air tour operations. (Class II, Priority Action) (A-93-11)

Devise a method for collecting data from air tour operators regarding flight hours, flight segments, and passengers carried that can be included in civil aviation exposure information for aviation industry comparisons. (Class II, Priority Action) (A-93-12)

Issue an Air Carrier Operations Bulletin instructing all Principal Operations Inspectors to aggressively encourage all commercial operators to incorporate comprehensive Aeronautical Decision Making (ADM) training in their pilot training programs. (Class II, Priority Action) (A-93-13)

Require commercial operators to conduct substantive background checks of pilot applicants, which include verification of personal flight records and examination of training, performance, and disciplinary and other records of previous employers, the Federal Aviation Administration safety and enforcement records, and the National Driver Register. (Class II, Priority Action) (A-93-14)

-- to Tomy International, Incorporated, d/b/a Scenic Air Tours, Hawaii:

Conduct substantive background checks of pilot applicants, which include verification of personal flight records and examination of training, performance, and disciplinary and other records of previous employers, the Federal Aviation Administration safety and enforcement records, and the National Driver Register. (Class II, Priority Action) (A-93-15)

In addition, the National Transportation Safety Board reiterates the following recommendation to the Federal Aviation Administration:

Perform a special study of the adequacy of Flight Standards District Office staffing considering the availability of work hours, the geographic area of responsibility, and the size and complexity of the assigned operations. (Class II, Priority Action) (A-90-136)

**GP Express Airlines, Inc. flight 861
Anniston, Alabama
June 8, 1992**

On June 8, 1992, GP Express Airlines, Inc. flight 861 crashed while maneuvering to land at the Anniston Metropolitan Airport, Anniston, Alabama.

The National Transportation Safety Board determined that the probable causes of the accident were the failure of senior management of GP Express to provide adequate training and operational support for the startup of the southern operation, which resulted in the assignment of an inadequately prepared captain with a relatively inexperienced first officer in revenue passenger service, and the failure of the flightcrew to use approved instrument flight procedures, which resulted in a loss of situational awareness and terrain clearance.

Contributing to the causes of the accident was GP Express' failure to provide approach charts to each pilot and to establish stabilized approach criteria. Also contributing were the inadequate crew coordination and a role reversal on the part of the captain and first officer.

As a result of this accident, the National Transportation Safety Board issued the following safety recommendations:

-- to the Federal Aviation Administration:

Require that all pilots operating aircraft under 14 CFR 135 have access to their own set of instrument approach charts. (Class II, Priority Action) (A-93-25)

Require that scheduled air carriers operating under 14 CFR Part 135 develop and include in their flight operation manuals and training programs stabilized approach criteria. The criteria should include specific limits of localizer, glideslope, and COR needle deflections and rates of descent, etc., near the airport, beyond which initiation of an immediate missed approach would be required. (Class II, Priority Action) (A-93-36)

Develop guidance and evaluation criteria for Principal Operations Inspectors to use to ensure that airline cockpit resource management training programs adequately address crew interaction, decision-making processes, information gathering, flightcrew communications, and leadership skills. (Class II, Priority Action) (A-93-37)

For airlines that utilize contracted flight and ground training programs, require that pilots hired directly to be captains receive additional flight instruction pertaining to the operating environment and procedures unique to the airline from an FAA-approved company check airman or instructor, rather than only from the contractor instructor. (Class II, Priority Action) (A-93-38)

Amend 14 CFR 135.243(c)(2) to require that the pilot-in-command of a commuter air carrier flight that requires two crewmembers have at least 100 hours of flight time or an equivalent level of training in commuter air carrier operations requiring two pilots. (Class II, Priority Action) (A-93-39)

Additionally, the Safety Board reiterated the following safety recommendations to the FAA:

Establish minimum experience levels for each pilot-in-command and second-in-command pilot, and require the use of such criteria to prohibit the pairing on the same flight of pilots who have less than the minimum experience in their respective positions. (A-88-137)

Require that scheduled 14 CFR Part 135 operators develop and use Cockpit Resource Management programs in their training methodology by a specified date. (A-90-135)

Trans World Airlines flight 843
John F. Kennedy International Airport
Jamaica, New York
July 30, 1992

On July 30, 1992, at 5:41 p.m. eastern daylight time, Trans World Airlines experienced an aborted takeoff shortly after liftoff from John F. Kennedy International Airport, Jamaica, New York, en route to San Francisco International Airport, California.

The National Transportation Safety Board determined that the probable causes of this accident were design deficiencies in the stall warning system that permitted a defect to go undetected, the failure of TWA's maintenance program to correct a repetitive malfunction of the stall warning system, and inadequate crew coordination between the captain and first officer that resulted in their inappropriate response to a false stall warning.

As a result of this accident, the National Transportation Safety Board issued the following safety recommendations:

-- to the Federal Aviation Administration:

Require the inspection of windows that are installed in emergency exits to ensure that they are free from damage that would interfere with a clear view and order the replacement of windows that are not airworthy. (Class II, Priority Action) (A-93-16)

Inform operators of L-1011 airplanes of the necessity to adjust seatbelts tightly and to lock both sides of the seatbelts (if locks are installed) that are installed on cockpit observer seats before takeoff, landing, and during turbulence. (Class II, Priority Action) (A-93-17)

Research the effect of aging upon the self-extinguishing ability of cabin interior furnishings and test furnishings that were certified to 14 CFR 25.853(a)(1)(i) to determine if they comply with the self-extinguishing requirements. Interior furnishings that fail to comply with 14 CFR 25.853(a)(1)(i) should be immediately replaced with materials that comply with 14 CFR 25.853, Appendix F. (Class II, Priority Action) (A-93-18)

Issue an air carrier operations bulletin directing Principal Operations Inspectors for 14 CFR 121 and 14 CFR 135 airlines to include in the training and procedures a requirement for crew coordination briefings on actions to take in the event of abnormal situations during the takeoff and initial climb phase of flight, and the proper techniques for the transfer of control of the airplane, especially during time-critical phases of flight. (Class II, Priority Action) (A-93-49)

Issue an air carrier maintenance bulletin directing the Principal Maintenance and Avionics Inspectors for 14 CFR 121 and 14 CFR 135 airlines to review the airlines' maintenance and quality assurance programs to take appropriate actions to verify that the trend monitoring programs are structured to detect repetitive malfunctions by means of flight-hour monitoring, as well as calendar-day monitoring. (Class II, Priority Action) (A-93-50)

Issue an airworthiness directive to require that a caution or warning light illuminates on the pilots' caution-warning panel in the event of a failure within the circuitry of L-1011 stall warning systems during ground or flight operations. (Class II, Priority Action) (A-93-51)

Require that the redundant stall warning systems installed on transport-category airplanes have ground test features and self-monitoring systems to alert the pilots to malfunctions in the stall warning systems. (Class II, Priority Action) (A-93-52)

Issue air carrier bulletins directing the Principal Inspectors for 14 CFR 121 and 14 CFR 135 airlines to review the circumstances of the accident involving TWA flight 843 on July 30, 1992, and to make the facts, conditions, and circumstances of the accident known to the appropriate airline operations, training, and maintenance personnel. (Class II, Priority Action) (A-93-53)

Conduct a human factors study, in cooperation with the National Aeronautics and Space Administration, of the practice by many airlines of requiring the captain to initiate and execute a rejected takeoff, even when the first officer is making the takeoff. The study should include a thorough examination of the practice of having the captain keep his hand on the power levers when the first officer is making the takeoff. The study should also include a comprehensive review and analysis of accident and incident data and simulator or other research, as necessary. The results of the study should be widely disseminated to the airline industry for use in evaluating and revising, if appropriate, rejected takeoff procedures and training. (Class II, Priority Action) (A-93-54)

-- to the Port Authority of New York and New Jersey:

Remove the blast fence located near the approach end of runway 31L at John F. Kennedy International Airport, and implement alternative methods to protect airplane operations from jet blast on runway 4R/22L. (Class II, Priority Action) (A-93-69)

**Midair Collision
Greenwood, Indiana
September 11, 1992**

On September 11, 1992, about 4:57 central daylight time, a Mitsubishi MU-2B-60 and a Piper PA-32-301 Saratoga collided at 2,100 feet mean sea level, approximately 2 miles northeast of the Greenwood Municipal Airport, Greenwood, Indiana.

The National Transportation Safety Board determined that the probable cause of the accident was the inherent limitations of the see-and-avoid concept of separation of aircraft operating under visual flight rules that precluded the pilots of the MU-2 and the PA-32 from recognizing a collision hazard and taking actions to avoid the midair collision.

Contributing to the cause of the accident was the failure of the MU-2 pilot to use all of the air traffic control services available by not activating his instrument flight rules flight plan before takeoff. Also contributing to the cause of the accident was the failure of both pilots to follow recommended traffic pattern procedures, as recommended in the Airman's Information Manual, for airport arrivals and departures.

As a result of this accident, the National Transportation Safety Board issued the following safety recommendations:

-- to the Federal Aviation Administration

Develop, publish, and disseminate VFR departure and arrival procedures for uncontrolled airports near Classes B, C, or D air space, irrespective of the provisions contained in Part 91 of the FARs. Consideration should be given to establishing entry and departure corridors for high-performance airplanes that are separate from low-performance airplanes at these uncontrolled airports. (Class II, Priority Action) (A-93-127)

Revise the Airman's Information Manual to recommend that pilots departing in VMC, with intentions of obtaining IFR clearances, obtain ATC clearances prior to becoming airborne when two-way radio communication with ATC is available on the ground. (Class II, Priority Action) (A-93-128)

Revise the Airman's Information Manual so that the information on scanning for other aircraft and the judgment aspects of collision avoidance are emphasized. Upon the next revision of the Flight Training Handbook (AC 61-21A) and the Pilot's Handbook of Aeronautical Knowledge (AC 61-23B), include the information on scanning for other aircraft and the judgment aspects of collision avoidance. (Class II, Priority Action) (A-93-129)

Inform flight instructors about the necessity for emphasizing scanning techniques during training and biennial flight reviews. (Class II, Priority Action) (A-93-130)

For the benefit of pilot awareness, revise language in the Airman's Information Manual to clearly reflect pilot responsibility in view of the limits of controller responsibility for separating IFR from VFR aircraft. (Class II, Priority Action) (A-93-131)

-- to the National Business Aircraft Association, the National Association of Flight Instructors, the Experimental Aircraft Association, and the Aircraft Owners and Pilots Association:

Inform your members of the circumstances of this accident, and encourage them to institute the recommended practices discussed in the accident report, especially the need for flight instructors to emphasize scanning techniques during training and biennial flight reviews, and the need for pilots to clearly understand their responsibilities in view of the limits of controller responsibility for separating IFR from VFR aircraft. (Class II, Priority Action) (A-93-132)

In addition, the Safety Board reiterated the following safety recommendation to the Federal Aviation Administration:

Expedite the development, certification, and production of various low-cost proximity warning and conflict detection systems for use aboard general aviation aircraft. (A-88-27)

**Japan Airlines, Inc. flight 46E
Anchorage, Alaska
March 31, 1993**

On March 31, 1993, the No. 2 engine and engine pylon separated from Japan Airlines, Inc. flight 46 E, a Boeing 747-121, shortly after departure from Anchorage International Airport, Anchorage, Alaska.

The National Transportation Safety Board determined that the probable cause of the accident was the lateral separation of the No. 2 engine pylon due to an encounter with severe or possibly extreme turbulence that resulted in dynamic multi-axis lateral loadings that exceeded the ultimate lateral load-carrying capability of the pylon, which was already reduced by the presence of the fatigue crack near the forward end of the pylon's forward firewall web.

As a result of this accident, the National Transportation Safety Board issued the following safety recommendations:

-- to the Federal Aviation Administration

Develop and implement a meteorological program to observe, document, and analyze potential meteorological aircraft hazards in the area of Anchorage International Airport, Anchorage, Alaska, with an emphasis on the approach and departure paths of the airport. (Class II, Priority Action) (A-93-136)

Amend the design load requirements of 14 CFR Part 25 to consider multiple axis loads encountered during severe turbulence. (Class III, Longer Term Action) (A-93-137)

Require the Boeing-proposed Boeing 747 engine pylon structural modification program to include increasing the lateral-load capability of the pylon structure. (Class II, Priority Action) (A-93-138)

Require any future structural modifications of existing engine pylons to consider multiple axis loading. (Class II, Priority Action) (A-93-139)

Issue an Airworthiness Directive to require compliance with Boeing Service Bulletin 747-54-2160. (Class II, Priority Action) (A-93-140)

Consider the necessity and feasibility of requiring the modification of the aircraft departure routes at Anchorage International Airport during periods of moderate or severe turbulence to minimize the potential of aircraft encountering mountain-induced low level turbulence. (Class II, Priority Action) (A-93-141)

-- to the National Weather Service:

Use the WSR-88D doppler weather radar system at Anchorage, Alaska, to document mountain-generated wind fields in the Anchorage area and to develop in greater detail low altitude turbulence forecasts. (Class II, Priority Action) (A-93-142)

Additionally, the National Transportation Safety Board reiterated the following safety recommendation to the National Weather Service:

Develop a broader meteorological aircraft hazard program to include other airports in or near mountainous terrain, based on the results obtained in the Colorado Springs, Colorado, area. (Class II, Priority Action) (A-92-58)

Public use aircraft owned by
the State of South Dakota
Zwingle, Iowa
April 19, 1993

On April 19, 1993, at 3:52 p.m. central daylight time, a Mitsubishi MU-2B-60 operated by the South Dakota Department of Transportation as a public use airplane collided with a silo on a farm near Zwingle, Iowa, while attempting an approach to an emergency landing at Dubuque Regional Airport, Dubuque, Iowa.

The National Transportation Safety Board determined that the probable cause of the accident was the fatigue cracking and fracture of the propeller hub arm. The resultant separation of the hub arm and the propeller blade damaged the engine, nacelle, wing, and fuselage, thereby causing significant degradation to aircraft performance and control that made a successful landing problematic.

As a result of this accident, the National Transportation Safety Board issued the following safety recommendations:

-- to the Federal Aviation Administration:

Determine whether any 4-bladed Hartzell propeller hubs have ever been installed on MU-2B airplanes and are now installed on other model airplanes, and issue the necessary airworthiness directives to inspect the hubs for fatigue damage. (Class I, Urgent Action) (A-93-153)

Identify airplanes that can, through a combination of the resonant RPM, the ground RPM range, and repair limits at the blade tip, produce the reactionless mode in the normal operating range. For those airplanes containing Hartzell hubs at risk for reduced fatigue properties (manufactured prior to April 1984), require inspection for cracks in the pilot tube hole. (Class II, Priority Action) (A-93-154)

Perform a designated safety inspection for cracking in the pilot tube hole on high time Hartzell 3-, 4-, and 5-bladed propeller hubs that are found to have high operating stress and that were manufactured with the pilot tube holes finished machined prior to heat treatment. (Class II, Priority Action) (A-93-155)

Increase the minimum ground idle RPM speed of the HC-B4 propeller on the MU-2B airplane to provide a greater margin between the resonant frequency of the reactionless mode and the ground idle speed. (Class II, Priority Action) (A-93-156)

Revise maintenance and repair limits for propeller blades on HC-B4 hubs on MU-2B aircraft to reduce the length of the uncontrolled area at the blade tip to minimize the in-service increase in the reactionless mode frequency. (Class II, Priority Action) (A-93-157)

Enhance the Emergency Assistance section of Air Traffic Control handbook 7110.65 to fully address the issue of selecting the best possible diversion airport for an IFR aircraft in an emergency status. (Class II, Priority Action) (A-93-158)

Provide all ARTCC sector positions of operation with the capability of displaying several hourly weather sequence reports at once. This display should be updated automatically, and displayed at all times. (Class II, Priority Action) (A-93-159)

Provide expanded emergency procedures training for air traffic controllers. The general capabilities of airplanes in various emergency scenarios involving air traffic control should be a focal point of this training, and past air traffic control-related accident reports should be used. (Class II, Priority Action) (A-93-160)

OFFICE OF AVIATION SAFETY STAFFING

Mr. PRICE. You are requesting \$13.577 million and 124 FTEs for the Office of Aviation Safety, a reduction of 5 FTEs from the fiscal year 1994 level. In what areas will the staff reductions be made? To what extent will your proposed reduction in staffing affect aviation accident investigations?

[The information follows:]

The proposed reduction of 5 FTEs will be achieved through attrition, so we do not know exactly which positions will be affected. However, we do expect that most of the positions will come from our investigative and technical positions, since these constitute the majority of employees in this area. Although we are committed to investigating all mandated accidents, we will see delays in issuing accident reports, a lessened ability to send our employees to training, more employees being "on call" more often and for longer periods of time, and a lessened ability to followup on safety recommendations.

Mr. PRICE. The fiscal year 1995 staffing request for the Office of Aviation Safety is 43 percent larger than the requested staffing level of the multimodal Office of Surface Transportation Safety. What is the rationale for the greater emphasis on aviation accident staffing when more fatalities occur in surface transportation?

[The information follows:]

The Board's greater emphasis on aviation accident staffing results from two basic reasons: 1) our transportation safety mandate requires us to investigate or cause to be investigated all aviation accidents; while surface accidents are investigated based on the severity of the accident and our determination of the potential safety benefit to be achieved by our involvement; and 2) even though a greater number of fatalities occur in the surface modes, most of these occur in the highway accidents where individuals have at least some control over their own safety.

The majority of these accidents are investigated by state and/or local officials. In the aviation mode, many of the fatalities occur in situations where individuals have little or no control over their safety. Our involvement in these cases is essential to maintaining public confidence in the transportation system.

AVIATION ACCIDENT REPORTS

Mr. PRICE. The justifications indicate that six major aviation accident investigation reports and 2,170 field reports will be issued in fiscal year 1994. How many such reports have been issued to date?

[The information follows:]

From October 1, 1993, to March 11, 1994, five major aviation accident reports, one summary report, and 821 field reports have been issued.

ADMINISTRATIVE LICENSE REVOCATION

Mr. PRICE. Administrative license revocation for drunk drivers is on the Safety Board's "Most Wanted" list. At our hearings last year, you indicated that 32 States have passed laws enacting administrative revocation of the licenses of drunk drivers. What progress has been made since last year in this area?

[The information follows:]

Two states—Texas and Idaho—enacted administrative license revocation (ALR) laws in 1993, bringing the number of states with a law to 34 (plus the District of Columbia). The Safety Board was actively involved in both states, testifying at hearings and meeting with key legislators. ALR bills were considered in 11 of the remaining 16 states during 1993.

Although it is still early in the year, ALR bills have been introduced in at least ten states, with the legislation receiving active consideration in most of those. In Virginia, an omnibus drunk driving bill containing ALR and other provisions has

passed both the House and Senate. A Massachusetts bill has passed the Senate, and the House action is expected soon. There is strong support for legislation in Pennsylvania and South Carolina, so that legislation there also is possible in 1994.

HIGH RISK DRIVERS ACT OF 1993

Mr. PRICE. The High Risk Drivers Act sponsored by Congressman Frank Wolf and Senator John Danforth would establish a new federal grant program to reduce traffic accidents caused by teenage drinking. Has the Safety Board evaluated this legislation and, if so, please provide your comments for the record?

[The information follows:]

The National Transportation Safety Board has commented on the High Risk Drivers Act of 1993, and a copy of our May 6, 1993, letter to Congressman Frank R. Wolf is below.

National Transportation Safety Board

Washington, D.C. 20594



Office of the Chairman

May 6, 1993

Honorable Frank R. Wolf
 Ranking Republican Member
 Subcommittee on Transportation and
 Related Agencies
 Committee on Appropriations
 House of Representatives
 Washington, D.C. 20515

Dear Congressman Wolf:

Thank you for requesting the Safety Board's views on the High Risk Drivers Act of 1993 (S. 738 and H.R. 1719), legislation to promote the implementation of programs to improve the traffic safety performance of high risk drivers.

As you know, the National Transportation Safety Board recently adopted a series of safety recommendations to reduce traffic crashes among young drivers, a group targeted in the High Risk Drivers Act of 1993. The Safety Board examined a large body of research involving young driver (ages 15 to 20) highway accidents and actions to prevent crashes by young drivers as part of its review. This research shows that young drivers are unquestionably over-represented in traffic accidents and deaths and that underage drinking and driving continues to play a role in youth traffic crashes and fatalities.

A series of recommendations was issued to the states aimed at young drivers and their access to alcohol. The Governors of all 50 states, Puerto Rico, the Territories, and the Mayor and the City Council of the District of Columbia were urged to improve their underage alcohol programs by:

- Eliminating deficiencies in minimum drinking age legislation to prohibit persons under the age of 21 from purchasing or attempting to purchase alcoholic beverages, and from possessing or consuming alcoholic beverages;
- Vigorously enforcing minimum drinking age laws, youth drinking and driving laws, and license revocation action against both underage purchasers and those who sell to under age persons;
- Enacting comprehensive laws that make it illegal for underage drivers to drive with any blood alcohol concentration above 0.00 BAC;
- Enacting a provisional driver's license for young novice drivers; and

Honorable Frank R. Wolf
Page 2

-- Enacting nighttime driving restrictions for young novice drivers that prohibit driving between certain times, especially midnight to five a.m.

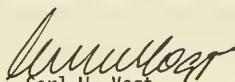
The Safety Board believes many of the provisions in the High Risk Drivers Act of 1993 are consistent with our recommendations. We particularly concur in the legislative provisions which call on the states to institute provisional drivers licensing systems as a condition for receiving grant assistance. Our recent study shows that incentives for more vigorous enforcement of minimum purchase age laws, for both sellers and buyers, can have a positive effect and the Safety Board supports the legislation's intent in this area as well. Further, the Safety Board believes the bill should be amended to lower the legal blood alcohol concentration (BAC) level for drivers under age 21 to 0.00, rather than 0.02 as presently proposed.

The Safety Board offers no specific comments with respect to the older driver programs contained in Title II, but we are looking into several accidents involving elderly drivers. Since April 1992, there have been five highly visible accidents involving elderly drivers in which eight pedestrians were killed and 25 injured. Three of the accidents are being investigated by the Board. While the threshold age of an elderly driver has not been defined, the age of the five drivers involved in the aforementioned accidents ranged from 70 to 87. In each case the vehicle accelerated out of control and each driver alleged that the vehicle was defective. However, a mechanical inspection of the four of the five vehicles did not reveal any discrepancies.

Since there is a growing elderly driver population with perhaps unique driving problems, the Safety Board will continue to investigate selected accidents involving this issue. The investigations will be aimed not only at determining the probable cause of the accidents, but also at identifying the unique problems of the elderly driver, and developing recommendations that will reduce the risk of them being involved in highway accidents.

Again, we appreciate the opportunity to comment on the legislation, and we stand ready to work with you toward the enactment of comprehensive measures to stem the tide of underage drinking and driving, and its tragic effect on highway safety.

Sincerely,



Carl W. Vogt
Chairman

cc: Honorable Bob Carr
Chairman, Subcommittee on
Transportation and Related
Agencies

TEENAGE DRIVERS

Mr. PRICE. Please list (1) those States which have set lower or zero tolerance blood alcohol concentration limits for teenagers during 1993 and indicate the BAC limit; (2) those States which in 1993 instituted nighttime driving curfews for teenagers; (3) those States which in 1993 enacted provisional licensing for young drivers; (4) those States which in 1993 enacted automatic license suspension for teenagers convicted of alcohol offenses; and, (5) those States which enacted stiffer penalties for the sale of alcohol to minors or the possession of alcohol by minors. What are the most important actions NHTSA could take to reduce teenage driving under the influence of alcohol?

[The information follows:]

States Enacting or Improving Low BAC Laws for Youth (1993)

Arkansas	0.02 BAC	Under Age 21
California	0.01 BAC	Under Age 21(Improved 1993)
District of Columbia	0.00 BAC	Under Age 21
Minnesota	0.00 BAC	Under Age 21
Nebraska	0.02 BAC	Under Age 21
New Mexico	0.02 BAC	Under Age 21 (Improved 1993)
Ohio	0.02 BAC	Under Age 21 (Improved Feb. 1994)
Tennessee	0.02 BAC	Under Age 21
Texas	0.07 BAC	Under Age 21

States Enacting Nighttime Driving Restrictions for Youth (1993)

None

States Enacting Provisional Licensing for Youth (1993)

No State enacted a provisional licensing system consistent with Safety Board recommendations in 1993. Oregon has enacted a system that may be an alternative to the Safety Board's recommendations. The State of Oregon is providing the Board with additional information on its system.

States Enacting Administrative License Suspension for Youth (1993)

All States that enacted low BAC legislation for youth in 1993 provide for automatic suspension upon conviction. Based on information available to the Safety Board, the following States enacted low BAC legislation for youth and link that legislation with administrative license suspension:

California
 District of Columbia
 Minnesota
 Nebraska
 New Mexico
 Ohio (Improved Feb 1994)

States Enacting Enhanced Sanctions for Sale of Alcohol to Minors or Possession of Alcohol by Minors (1993)

The Safety Board has no information on legislation to provide for stiffer penalties for alcohol sale to, or possession by, minors. However, the Safety Board has received information from the States that many deficiencies in age 21 laws have been rectified. As of February 24, 1994, at least 23 changes in 11 States have been made regarding the age 21 laws identified in the Safety Board's report. The States include: Arkansas, Connecticut, the District of Columbia, Louisiana, Montana, New York, Oregon, Pennsylvania, Rhode Island, South Dakota, and Virginia. Other States have provided information on age 21 laws that the Board is in the process of analyzing.

SNYDER, OK, SCHOOLBUS ACCIDENT

Mr. PRICE. What issues are you looking at in the November 1993 accident involving a schoolbus and a tractor semi-trailer in Snyder, Oklahoma, and why is the Safety Board involved in this particular highway accident?

[The information follows:]

The National Transportation Safety Board continues to investigate schoolbus accidents that cause significant child passenger fatalities. As a result of the Snyder, Oklahoma, schoolbus accident, eight of the nine student passengers were ejected and four died. In conjunction with this investigation, the Safety Board is exploring occupant restraint systems and requirements for small schoolbuses, driver training and qualifications, and student passenger behavior on schoolbuses.

SCHOOLBUS SAFETY

Mr. PRICE. Is the Safety Board concerned about NHTSA's lack of progress in addressing the Safety Board's recommendations addressing fuel tank integrity and the flammability of materials in schoolbuses? What are the reasons for the delay?

[The information follows:]

The National Highway Traffic Safety Administration has been providing the Safety Board with periodic updates on their progress concerning the fuel tank integrity and flammability of materials in schoolbus research. This issue requires significant study, and the Safety Board has classified the recommendations concerning this issue as Open-Acceptable Action.

VERNON, NJ, CHARTER BUS ACCIDENT

Mr. PRICE. Please provide the Safety Board's findings and recommendations in the investigation of the July 1992 accident in Vernon, New Jersey, involving the Sensational Golden Sons charter bus operator.

[The information follows:]

On July 26, 1992, about 11:10 a.m., the driver of a charter bus traveling from Brooklyn, New York, to Vernon, New Jersey, lost control of the bus as it descended a steep hill. The bus struck a car, overturned on its right side, slid and spun on its side, uprighted, and struck another car before coming to rest. A fire ensued, burning the bus and the second car. Twelve of the 50 bus occupants were ejected from the bus during the collision; six of whom died. The bus driver, who was also the owner of the company, and the other 37 bus passengers sustained minor to serious injuries. The two car drivers sustained minor injuries, and the car passenger was uninjured.

The bus had been purchased by Golden Sons in March 1992 and was registered with the State of New York while still uninspected. The owner was given 10 days to have the bus inspected, but he never had it done. This was not an isolated case. A spot-check conducted by the New York Department of Transportation after the accident revealed more than 30 other buses without inspection stickers that were transporting passengers.

In addition, New York's Department of Transportation permits a bus operator who is found to be transporting passengers without an inspection sticker to unload the passengers and driver away without having the bus inspected. Because the practice does not discourage the operator from using uninspected buses in future operations, it poses a safety hazard.

Golden Sons was operating in interstate commerce and was subject to Federal Highway Administration (FHWA) rules and regulations; however, FHWA was unaware that Golden Sons existed. Consequently, there was no federal safety oversight of the carrier. The FHWA could have discovered from the Interstate Commerce Commission (ICC) that Golden Sons had interstate authority, but failed to search ICC documents despite assurances in 1988 that they would do so.

The National Transportation Safety Board determined that the probable cause of the accident was the busdriver/owner's failure to maintain the bus adequately and his deliberate disregard in choosing to operate the bus with known brake deficiencies. Contributing to the accident was the failure of the New York Department of Transportation to inspect the bus and ensure that its deficiencies were corrected. Also contributing to the accident was the inadequacy of the Federal Highway Administration's system for identifying motor carriers.

On July 26, 1993, the National Transportation Safety Board issued the following safety recommendations.

-- to the Federal Highway Administration:

Require any carrier that changes its name or principal place-of-business address to update its MCS-150 promptly. (Class II, Priority Action) (H-93-27)

Develop a systematic and continual process of identification of carriers subject to the Federal Highway Administration's jurisdiction that includes the immediate entry of new carriers onto the Motor Carrier Management Information System, systematically accessing available State record systems, and maintaining contact with the Interstate Commerce Commission concerning new motor carriers. Devise a method of verifying that the process results in the identification of the entire carrier population. (Class II, Priority Action) (H-93-28)

-- to the New York Department of Motor Vehicles

Issue registration plates for commercial vehicles capable of transporting passengers only after the vehicle has passed an inspection. (Class II, Priority Action) (H-93-29)

-- to the New York Department of Transportation

Conduct periodic roadside inspections to identify buses that are not fit for service and prohibit them from operating, regardless of whether passengers are on board, until they have passed inspection. (Class II, Priority Action) (H-93-30)

-- to the American Association of Motor Vehicle Administrators:

Ascertain which States do not require mechanical inspections of vehicles capable of transporting passengers before issuing registration plates and then, recommend that those States issue registration plates for these vehicles only after the vehicle has passed an inspection. (Class II, Priority Action) (H-93-31)

-- to the United Bus Owners of America:

Advise members of the circumstances of this accident and urge them to report any suspected safety violations or uninspected buses to the appropriate authorities. (Class II, Priority Action) (H-93-32)

-- to the American Bus Association:

Advise members of the circumstances of this accident and urge them to report any suspected safety violations or uninspected buses to the appropriate authorities. (Class II, Priority Action) (H-93-33)

HIGHWAY GRADE CROSSING SPECIAL STUDY

Mr. PRICE. When does the Safety Board plan to initiate its safety study on highway rail grade crossings and what issues will be explored?

[The information follows:]

The National Transportation Safety Board's safety study on highway/rail grade crossings will explore a number of issues relevant to passive grade crossings, including approach signage and pavement markings, crossing signage, sight distance and crossing geometry, night issues, crossing closures, private crossings, whistle effectiveness, and educational issues. The study will begin this fall pending the availability of resources.

INTERCESSION CITY, FL, GRADE CROSSING ACCIDENT

Mr. PRICE. Please give us an update on your investigation of the accident that occurred on November 30, 1993, in Intercession City, Florida, involving Amtrak and a tractor trailer transporting an oversize transformer.

[The information follows:]

On November 30, 1993, a northbound Amtrak passenger train crashed into an oversized, overweight combination trailer of a tractor at a private grade crossing near Old Tempe Highway in Intercession City, Florida. The locomotive and first three rail cars derailed and overturned. The train was occupied by 4 train crew, 10 onboard service personnel, and 88 passengers. As a result of the collision, 64 train occupants and the truck driver were transported to 5 area hospitals, 7 train occupants and the truck driver were admitted for treatment. There were no fatalities, life threatening injuries, or fire.

The truck weighed approximately 82 tons and was completing a trip from Tampa to a power station in Intercession City. The investigation has revealed that the truck operators were in the process of raising the trailer load to accommodate the geometry of the crossing when the collision occurred. The Safety Board is exploring the issues of oversize-overweight vehicle permitting, emergency response notifications, and communications between highway users and the railroads.

GARY, IN, GRADE CROSSING ACCIDENT

Mr. PRICE. Also please give us an update on your investigation of the grade crossing accident that occurred on December 22, 1993 in Gary, Indiana.

[The information follows:]

Amtrak train 41 consisted of two locomotive units 357 and 195, and 15 cars. Locomotive unit 195 and the 4th car of the train (baggage car 1420) derailed when the train struck a tractor-trailer combination truck at the Clarke Road crossing in Gary, Indiana. The train was traveling westward on the CSX Transportation no. 2 main track (southernmost of two main tracks) at about 60 mph. The allowable track speed was 79 mph. Train movements are controlled by a centralized traffic control system (CTC).

Ten passengers, the engineer, and four on-board service personnel were taken to a local medical facility where they were treated and released.

Prior to the arrival of Amtrak train 41, CSXT freight train 381 had proceeded west over the Clarke Road crossing on main track 1 (northernmost main track) and stopped at an interlocking about 1 mile west of the Clarke Road crossing. The CSXT dispatcher decided that he would permit Amtrak train 41 to proceed through the interlocking before CSXT 381. CSXT 381 then backed up in order to clear the Clarke Road crossing, stopping about 300 feet east of the crossing. At that time, Amtrak train 41 was about 500 feet east of the crossing.

The tractor-trailer combination truck was proceeding south on Clarke Road with a load of steel coils on the flat-bed trailer. The driver drove around the lowered crossing gates on the north side of the Conrail tracks, and past operating flasher lights on the north side of the CSXT tracks in front of the Amtrak train. The truck was struck between the tractor and the trailer. The driver was taken to the hospital in critical condition and died about 2 hours after the accident.

Clarke Road is the only access to an industrial area that includes the Gary Steel works of USX and the northern Indiana Public Services generating plant. A vehicle travelling south from the industrial area on Clark Road encounters the following grade crossings: (1) Six tracks of an interchange yard crossing with crossbucks; (2) about 20 feet south—two main tracks with flashing lights and gates; (3) about 50 further south—two main tracks with flashing lights with the gates of the previous crossing acting on train movement; and (4) about 50 further south—one yard track with crossbucks.

The on-scene investigation is complete, and a brief of the accident is scheduled for completion this summer.

POSITIVE TRAIN SEPARATION

Mr. PRICE. What are the most significant actions that the FRA could take to accelerate progress on positive train separation?

[The information follows:]

The Federal Railroad Administration could accelerate the progress on positive train separation taking the following actions: Fully define the scope of the positive train separation system under discussion including the features that are going to be include or excluded; commission an independent cost benefit analysis on the system defined in item 1 based on assumptions acceptable to the government, the railroads, and the railroad supply industry. Include in the analysis the advantages due to increased operations efficiency, track utilization, another advantages to the railroads as well as the cost savings from avoiding accidents; sponsor a demonstration project that will showcase the developed positive train separation technology.

ADVANCED TRAIN CONTROL SYSTEM

Mr. PRICE. I understand that the Burlington Northern and Canadian National railroads have tested an experimental, satellite-based system called Aries and that private industry studies have indicated that such a system could pay for itself in four years. Why has the industry moved from a satellite to a ground-based system (the advanced train control system)?

[The information follows:]

There are several reasons given for the move by industry away from a satellite based system to a ground based system. A system using the Global Positioning Satellite System (GPS) to locate trains was, by itself, not accurate enough to locate trains on parallel tracks. Train positioning accuracy is needed to identify which parallel tracks the train is actually operating on, and this requires the use of differential GPS involving the placement of ground base stations. There was also some concern that GPS could be blocked out when trains were in tunnels or in mountainous territory. The availability of GPS was an issue as well, as it had been reserved exclusively for military use during Operation Desert Storm.

The advanced train control approach has always used a ground based system and its use was continued after the ARES satellite based system was abandoned.

Mr. PRICE. Because advanced train control systems combine telecommunications and microprocessors, they might improve scheduling, expedite maintenance, et cetera. Has the FRA or the industry rigorously examined the operational and efficiency benefits that might accrue to the industry as result from these new systems in addition to potential safety payoffs?

[The information follows:]

Some studies have been conducted to try and define the operational benefits that might be accrued with an advanced train control system. The results of these studies varies depending on the assumptions made. One study predicts payoff of the system in three years while another predicts that the system will not pay for itself in under 10 years.

There is a need for a definition of the system and a cost benefit analysis based on assumptions that are agreed to by the government, railroads, and railroad supply industry.

POSITIVE TRAIN SEPARATION RESPONSES

Mr. PRICE. Please provide the December 1993 responses of the FRA and the Association of American Railroads to your recommendations regarding positive train separation.

[The information follows:]



ASSOCIATION
OF AMERICAN
RAILROADS

Edwin L. Harper
President and
Chief Executive Officer

November 22, 1993

The Honorable Carl W. Vogt
Chairman
National Transportation Safety Board
490 L'Enfant Plaza East, S.W.
Washington, D. C. 20594

Re: Safety Recommendations R-93-13 and -14

Dear Chairman Vogt:

In a letter dated July 29, 1993, the National Transportation Safety Board recommended the following to the Association of American Railroads:

In conjunction with the Federal Railroad Administration and the Railway Progress Institute, establish a firm timetable that includes, at a minimum, dates for final development of required Advanced Train Control System hardware, dates for implementation of a fully developed Advanced Train Control System, and a commitment to a date for having the Advanced Train Control System ready for installation on the general railroad system. [R-93-13.]

Advise your membership of the facts and circumstances of this accident and encourage them to implement and install an Advanced Train Control System. [R-93-14.]

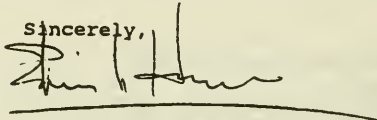
AAR acknowledges the interest of NTSB in ATCS development. AAR appreciated the opportunity to meet with NTSB representatives on July 21, 1993, where ATCS was one of the subjects discussed.

From the standpoint of AAR, it is not possible at this time to make a commitment or establish a firm timetable for final development of ATCS, as recommended by NTSB in R-93-13. ATCS is not an off-the-shelf product. It is a very complex concept and involves unproven technology.

The AAR Board, earlier this year, did endorse the concept of a basic communications platform for its member roads. This could constitute a critical building block for the development of ATCS. However, I must caution that questions remain about ATCS technology, its implementation in the different environments of our member roads, and costs. The AAR Board of Directors has instructed AAR and railroad staff to address these questions. The plan is to complete initial work on these feasibility issues in 1994.

In partial response to R-93-14, AAR will send a copy of the Railroad Accident Report concerning Ledger, Montana (NTSB/RAR-93/01) to railroad representatives serving on AAR's Operations General Committee.

Sincerely,

A handwritten signature in dark ink, appearing to read "J. Molitoris", is written over a horizontal line.

cc: Ms. Jolene Molitoris, FRA
Mr. Robert A. Matthews, RPI



U.S. Department
of Transportation

Federal Railroad
Administration

Office of the Administrator

400 Seventh St., S.W.
Washington, D.C. 20590

DEC 3 1993

The Honorable Carl W. Vogt
Chairman
National Transportation Safety Board
490 L'Enfant Plaza East, S.W.
Washington, D. C. 20594

Dear Mr. *Carl* Chairman:

This is in response to National Transportation Safety Board (NTSB) Safety Recommendation R-93-12, the most recent in a series of recommendations dealing with safety systems to achieve positive train separation.

This recommendation urged the FRA, in conjunction with the Association of American Railroads (AAR) and the Railway Progress Institute (RPI), to establish a firm timetable that includes, at a minimum, dates for final development of required Advanced Train Control System (ATCS) hardware, dates for implementation of fully developed ATCS, and a commitment to a date for having ATCS ready for installation on the general railroad system.

Since R-93-12 is similar to R-91-25, I am also updating our response to the latter recommendation.

We understand "ATCS" as characterized in the recommendation to refer to the train control aspects of the AAR/Canadian railways ATCS project. Because the train control features are only a portion of a family of technologies, we will refer in this reply to the entire family as "ATCS," addressing the features of the system designed to enforce speed restrictions and train separation more specifically as "ATCS train control."

Business decisions and technical risks

Over the past several years, FRA has actively monitored the development of ATCS specifications. The agency has supported the NTSB's calls for rapid development and implementation of next-generation train control technology. However, our review of traditional automatic train control systems had indicated that installation of such systems over any significant portion of the national rail system would be prohibitively expensive. (Report to the Congress entitled, "The Advisability and Feasibility of Requiring Automatic Train Control Systems on Each Passenger and Hazardous Material Rail Corridor," April 1991.)

As you know, ATCS is a next-generation system based on contemporary communications technology. The Board and FRA have shared the expectation that ATCS train control might overcome the

cost effectiveness issue, particularly since the ATCS family of technologies should result in major commercial benefits to the railroads. In our judgment, these other benefits appear to have the potential to permit early recovery of capital investments in ATCS.

However, it is not FRA that must be persuaded that the business case has been established. Thus far, railroad managements and boards of directors have been reluctant to commit major investments, beyond developmental work, until they are satisfied that the entire ATCS family of technologies will permit recovery of capital and provide a suitable return on investment. As a result, the railroad supply industry is not in a position to project dates for completion of systems development or implementation, until the level of funding is clarified.

Because ATCS could, at most, prevent a relative handful of the most serious accidents each year, application of ATCS to any significant portion of the rail system could not withstand economic scrutiny unless non-safety benefits could be taken into account. Yet non-safety benefits will be available to the railroads only if they decide to exploit the other opportunities the technology offers. This set of realities defines the dilemma confronting the Board, FRA and other safety advocates.

The technical challenges associated with ATCS train control also warrant mention. There are risks associated with the design and deployment of any software-based technology intended to serve as a first-order safety system. Full development of ATCS train control will thus require the earnest attention of railroad personnel and contractors, working in close coordination and with clear objectives. Even when funding commitments are in hand, rigid timetables may prove difficult to enforce. Indeed, prudence may dictate that the project proceed on the basis of a series of milestones, each of which will have to be satisfactorily achieved before the next is undertaken.

Train control is the most highly refined element of ATCS. Although the railroads have not indicated a firm commitment to development of ATCS train control, the outlook is not entirely dark. Our information suggests that the AAR may be moving toward at least a partial resolution of the ATCS issue. Last spring, the Burlington Northern elected to align itself with other North American railroads committed to the ATCS communications platform. This moves the debate one step closer to the kind of "compatibility" that the Board has urged for some time.¹ Other

¹Board representatives have privately bemoaned the termination of the BN ARES system, on the ground that the (Global Positioning Satellite (GPS) location system is being explored for use in other modes. However, this outcome was extremely likely

deliberations within the industry are focusing on the relationship between ATCS work order capabilities and interline service management.

Implementation of ATCS elements

Very quietly, actual progress is being made toward putting in place a portion of the communications infrastructure that would be needed to support an ATCS train control system. The Union Pacific has placed ATCS-specification data radio transceivers along its right of way and on its locomotives (together with on-board computer terminals). The Santa Fe, Norfolk Southern, CSX and other railroads have begun to place ATCS-specification transceivers along their lines when pole line elimination is undertaken. If these investments continue, if the data radio platform proves itself in the initial applications, and if work order reporting proves valuable in improving service quality, then the increases in system capacity that ATCS train control could provide might constitute the final set of benefits needed to induce investments in ATCS train control.

Breaking the ice to achieve the positive train separation and speed control objectives of ATCS will require a solid demonstration of the technology. The President of the AAR and the Secretary of Transportation have exchanged initial correspondence regarding the possibility of demonstrating ATCS on a high speed rail line (with ATCS train control operating in the background until accepted for safety purposes). When legislation authorizing the President's high speed ground transportation initiative is enacted early in the next session of this Congress, it will be timely to explore whether an ATCS demonstration fits well in that context.

Other train control advances

As you know, the issue of enhancements in train control systems is not limited to the AAR ATCS program. Over the past three years, we have worked with the National Railroad Passenger Corporation (Amtrak) to provide civil speed enforcement at key points on the Northeast Corridor, augmenting the existing ATC system. We are currently working with Amtrak to implement an enhanced train control system capable of positive stop enforcement, protection of maintenance-of-way crews, and improved speed control on the north end of the Northeast Corridor, in conjunction with electrification. The Florida East Coast Railroad has independently installed a sophisticated automatic

given the premium the Board has placed on compatibility and the fact that the communications platforms and on-board equipment contemplated by the two designs could not be reconciled.

train control system using conventional technology on its line along the east coast of Florida.

The FRA continues to work toward development of analytical capabilities that will permit us to evaluate line segments for priority application of ATCS or ATC. Clearly, ATCS-type systems, if successfully demonstrated, offer the prospect of proving cost effective over a larger portion of the freight railroad system than traditional technologies. However, if ATCS is not deployed, it will be necessary for FRA to consider use of our authority under the Signal Inspection Act to require ATC on any lines where documented risk exceeds the costs of installing and maintaining ATC.

We are also encouraging interim uses of ATCS data communications to provide for more secure transmission of movement authorities using on-board computer terminals fed by computer-aided dispatching. This will ultimately lead, we believe, to enhanced communications and reductions in train collisions.

Report to the Congress

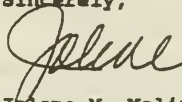
The Rail Safety Enforcement and Review Act of 1992 requires the FRA to conduct a safety inquiry into railroad radio communication issues, to include advanced technologies such as ATCS. As part of this inquiry, FRA has contracted with the Institute of Telecommunications Sciences (ITS), U.S. Department of Commerce, to assess existing ATCS software and hardware. ITS is helping us to evaluate whether the system specifications can provide reliable and secure support for train control applications. We believe a positive report from ITS would help build confidence in the railroad community for moving forward on the train control applications of ATCS, as well as providing important information for the report to Congress. This project was discussed with NTSB staff earlier this summer.

I believe conditions are good for obtaining contingent commitments on ATCS development and implementation from the railroad industry by the time of our report to the Congress next July. I have already begun informal consultations with railroad and supply industry representatives to clarify the issues and concerns that must be resolved in order to chart our course. We will be opening the public phase of our safety inquiry in the near future, and the participation of the Board at a senior level will be important to the success of that effort.

Pending completion of our work, we request that this recommendation be placed in "Open - Acceptable Response" status.

I appreciate your concern regarding these matters.

Sincerely,

A handwritten signature in dark ink, appearing to read "Jolene", written over a horizontal line.

Jolene M. Molitoris
Administrator

KELSO, WA, RAILROAD ACCIDENT

Mr. PRICE. A November 11, 1993, head-on collision in Kelso, Washington, involved a Burlington Northern freight train traveling southbound and a Union Pacific freight train traveling northbound. Has your investigation yielded any clues to date concerning how the trains found themselves on the same track?

[The information follows:]

About 12:24 Pacific Standard Time (pst), on November 11, 1993, a Burlington Northern freight train collided head-on with a Union Pacific freight train at BN milepost 102.8 south of the Longview Junction South interlocking near Kelso, Washington.

The UP train was to crossover at the Longview Junction South interlocking from No. 2 main track to the No. 1 main track and continue north to Seattle. The BN train was to stop at the signal for the Longview Junction South interlocking on No. 2 main track and wait until the UP train had cleared the interlocking. Determining how the trains found themselves on the same track is a critical element in our investigation, and the Board's report is scheduled to be completed late this summer.

Mr. PRICE. Please insert in the record an update on the status of the investigation of the Burlington Northern accident in Kelso, Washington.

[The information follows:]

About 12:24 Pacific Standard Time (pst), on November 11, 1993, a Burlington Northern freight train collided head-on with a Union Pacific freight train at BN milepost 102.8 south of the Longview Junction South interlocking near Kelso, Washington.

The accident area is located between the Columbia River, located to the west, and Interstate 5 to the east. Interstate 5 was temporarily closed because derailed equipment had destroyed about 200 feet of guardrail and to accommodate emergency vehicles responding to the accident. Dense fog was reported by emergency response personnel.

The UP train was to crossover at the Longview Junction South interlocking from No. 2 main track to the No. 1 main track and continue north to Seattle. The BN train was to stop at the signal for the Longview Junction South interlocking on No. 2 main track and wait until the UP train had cleared the interlocking. At that time the BN dispatcher had planned to have the BN train proceed southward through the interlocking from track 2 to track 1.

The collision occurred south of the northbound signal for Longview Junction South interlocking. All locomotive units were either destroyed or severely damaged. Following the collision a fire from punctured fuel tanks engulfed the derailed locomotives. The UP train had one car destroyed and five damaged. The BN train had seven cars destroyed and 11 damaged. One event recorder data pack and one damaged data pack were recovered from the BN train. No event recorder data packs were recovered from the UP train.

On February 22-24, 1994 Safety Board investigators took statements in Kelso, Washington, from 11 witnesses. These statements will supplement the information gathered at the scene concerning the operation of the signal system, train dispatching, company train operations oversight, radio communications, and train dispatchers oversight.

SUPERIOR, WI, HAZARDOUS MATERIALS ACCIDENT

Mr. PRICE. Please provide an update of the status of the Safety Board's investigation of the June 30, 1992, Burlington Northern derailment near Superior, Wisconsin, which involved the release of more than 20,000 gallons of benzene and include any preliminary findings of the investigation.

[The information follows:]

On June 30, 1992, at approximately 2:45 a.m. near Superior, Wisconsin, 14 cars of a Burlington Northern train derailed (the 27th through the 40th cars). The train departed Pokegama Yard near Superior at 2:15 a.m. travelling south and west at the maximum authorized timetable speed of 35 miles per hour. The train had a

four-person crew and consisted of 3 locomotives and 57 cars. It was 5,100 feet long and was enroute to Northtown, Minnesota.

The initial point of derailment was about 15 feet before a bridge that crosses the Nemadji River. The locomotives and some cars had already crossed the bridge when the other cars began derailling before the bridge. All the tank cars involved in the derailment fell approximately 100 feet from the bridge trestle.

Three of the tank cars contained hazardous materials (butadiene, propylene, and benzene). The butadiene and the propylene were transported in DOT 112J tank cars, and the benzene was transported in a DOT 111A tank car.

The tank car carrying 26,350 gallons of benzene was breached, resulting in the release of more than 20,000 gallons of product. By 8:30 a.m. rising temperatures and prevailing winds generated a massive cloud of vapor fumes over the Superior, Wisconsin/Duluth, Minnesota area. During a 16-hour period, local officials evacuated approximately 40,000 residents from the Duluth area and 2,500 from Douglas County, Wisconsin.

All crewmembers submitted urine and blood specimens for post-accident toxicological testing. The results for all crewmembers indicated "no drugs or alcohol were identified."

The Board discussed this accident at a Board meeting held May 11, 1993. The Board requested additional investigation of issue #3 below. It is tentatively scheduled to be discussed at a Board meeting to be held March 28, 1994, and we will provide the findings to the Committee when the Board completes action.

LEDGER, MT, RAILROAD ACCIDENT

Mr. PRICE. Burlington Northern was also involved in the last major head-on collision of two freight trains which occurred in Ledger, Montana, in 1991. The Safety Board's report on that accident recommended that Burlington Northern improve its dispatching and communication practices. What evidence do you have that this has occurred and that the FRA is exercising proper safety oversight over Burlington Northern?

[The information follows:]

The record of Burlington Northern's (BN) response to the recommendations issued in the Ledger report indicates that the BN has taken the Safety Board's recommendations very seriously and that many improvements to their dispatching and communications practices have been made. The improvements involve radio procedures, dispatcher qualification and requalification methods, and oversight of dispatcher performance. The dispatcher recommendations issued to BN as a result of the Ledger accident are either classified as closed or as acceptable response.

The Safety Board believes that the FRA is exercising increased oversight of the BN dispatching activities due to their more aggressive enforcement of radio regulations contained in 49 CFR Part 220.

STEVENSVILLE, MI, RAILROAD ACCIDENT

Mr. PRICE. Please provide an update of the status of the Safety Board's investigation of the December 30, 1992, Amtrak derailment in Stevensville, Michigan, and include the issues being explored in your investigation.

[The information follows:]

The investigation is complete and a determination of probable cause is expected by the end of March 1994. The issues addressed in the investigation were the track inspection by train crewmembers following an emergency application of the train brakes, and communications between the train dispatcher and the train crew.

RAILROAD EVENT RECORDER RULEMAKING

Mr. PRICE. In July 1993, the FRA published a final rule requiring the use of event recorders after January 16, 1995, in the first locomotive of all trains operated faster than 30 miles per hour. Did the Safety Board comment on the rule. If so, what were your comments?

[The information follows:]

The National Transportation Safety Board commented on the final rule on October 1, 1993. A copy of that correspondence is below.

National Transportation Safety Board

Washington, D.C. 20594



October 1, 1993

Docket Clerk
(Docket No. LI-7; Notice 5)
Federal Railroad Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

Dear Sir:

The Federal Railroad Administration (FRA) recently published their Final Rule on Event Recorders. The rule that becomes effective on November 5, 1993, requires railroads to equip all locomotives that operate at speeds greater than 30 mph with an event recorder.

The Safety Board has recommended mandatory event recorders for many years and agrees with the intent of all aspects of the new rule other than subsection 229.135 (d)(1) which pertains to the preservation of event recorder data for investigations by the Safety Board. That subsection requires that the railroad provide the Safety Board with the original, unaltered event recorder tape for their investigation.

The regulation (49 CFR 229.135(d)(1)) reads as follows:

Accidents Reportable to the National Transportation Safety Board

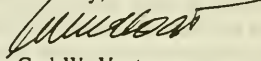
If any locomotive equipped with an event recorder is involved in an accident that is required to be reported to the National Transportation Safety Board (See 49 CFR Part 840), the railroad using the locomotive shall make no attempt, except by the direction of a representative of the Board, or as may be necessary to preserve the data from destruction, to extract or analyze the recorded data until 8 hours have passed from the time the accident is reported to the National Response Center, or until the Board declares that it will not conduct an investigation of the accident, whichever comes first. If within the 8-hour period, the Board notifies the railroad that an investigation will not be conducted, or if the Board fails to give notification within the 8-hour period, the railroad may extract the data consistent with the preservation requirements of paragraph (d)(2) of this section.

The Safety Board believes that this portion of the FRA rule may place a regulatory burden on both the Safety Board and the railroad industry that goes beyond that required for the efficient discharge of the Safety Board's accident investigation program. To provide timely response to the railroads on the 2500 to 3000 railroad accidents that are reported to the Safety Board each year would require a 24-hour telephone watch by Safety Board Railroad Accident

Investigators. If the Safety Board does not provide timely response, the railroads will be denied access to their event recorder data for 8 hours on many accidents where the Safety Board does not need the data. The Safety Board issued its own Notice of Proposed Rule Making (56 FR 118, 6/19/91, Page 28132) on the preservation of event recorders. We received comments opposed to the breadth of that rule which focused the Board's attention on legitimate questions about the imposition of a regulatory burden that would not result in a cognizable gain to the Board's accident investigation work. In the interim, we have operated under the less formal and cooperative tradition that typically characterizes the accident investigation process, and wish now to explore reissuing a proposed rule more specifically targeted at those instances where circumstances necessitate full Safety Board control over the event recorder. We anticipate that this would involve a significantly smaller universe than that captured by the rule formulated by FRA.

Therefore, the Safety Board requests that the FRA withdraw the requirements contained in section 229.135 (d)(1) and reserve this section for the Safety Board's future regulations. This approach will enable the Safety Board to tailor its regulations appropriately and, with subsequent publication of our rule in both the Safety Board's own regulations as well as Part 229 of FRA's rules, ensure consistent rules.

Sincerely,



Carl W. Vogt
Chairman

LOCOMOTIVE FUEL TANK SAFETY STUDY

Mr. PRICE. In 1992, the Safety Board issued a special safety study concerning locomotive fuel tanks. What progress has the FRA and the industry made in conducting research to determine whether the locomotive fuel tank can be improved?

[The information follows:]

The National Transportation Safety Board (NTSB) is aware that in February 1993 the Federal Railroad Administration (FRA), the Association of American Railroads (AAR), and the locomotive manufacturers met to discuss the Board's safety recommendations, in particular those involving the conduct of research to determine if the integrity of the fuel tank could be improved. After that meeting, the FRA informed the Board that because of funding constraints, cooperative research and analysis may be limited in scope. At the same time, however, General Motors informed the Safety Board that it was in general agreement with the AAR's plans to conduct research and would support the FRA research into fuel tank structural integrity. The NTSB requested a clarification of the research and testing being contemplated by the FRA, but to date has not received this information.

The Safety Board is also aware that the FRA, as required by section 10 of the Rail Safety Environment and Review Act, will be collecting data on several locomotive crashworthiness features, including some data on locomotive fuel tanks. After reviewing the accident criteria for collecting the data, the Board expressed concern that the data collected on fuel tank damage may be too limited to be useful in analyzing fuel tank structural integrity. The FRA has yet to respond to the Board's concerns in this area.

Based on information provided to the Safety Board, we are concerned that little progress has been made in conducting research to determine if the locomotive fuel tank can be improved.

MOBILE, AL, AMTRAK ACCIDENT

Mr. PRICE. Is the Safety Board's investigation of the recent Amtrak derailment in Mobile, Alabama, revealing any new information regarding the integrity of locomotive fuel tanks?

[The information follows:]

The forces involved in the Mobile, Alabama, accident were very severe. The locomotive fuel tanks on the older F40 locomotives were completely separated from the units. Deformation of the F40 tanks was extremely bad. The new PH40 locomotive fuel tank, however, survived the accident in relatively good shape. The 2,200 gallon fuel tank is divided into four cells made of .25 inch steel sheet. The cells are computerized and vented to maintain equalization and to minimize spills in the event of a rupture. The fuel tanks are also recessed much higher above the rails than previous locomotive units in order to minimize the chance of a puncture from debris on the track. Although the PH40 fuel tanks were breached, they survived the accident much better than the F40 fuel tanks. The Safety Board investigators were impressed with the overall crashworthiness of the PH40 locomotive.

HAZARDOUS MATERIALS—RAILROAD TANK CARS

Mr. PRICE. What were the results of FRA's initial review of safety standards for railroad tank cars transporting hazardous materials?

[The information follows:]

The Federal Railroad Administration (FRA) asked the Transportation Research Board (TRB) to study tank car designs. On March 2, 1994, the TRB Tank Car Study Committee Members were provided a draft of the final report for review. The committee members were requested to complete their review before the end of March. It is the Board's understanding that after the Tank Car Study Committee approves a draft report, it will be reviewed by an appropriate committee within the National Research Council.

TANK CAR RULEMAKING COMMENTS

Mr. PRICE. Please provide a copy of the Safety Board's comments on the September 16, 1993, notice of proposed rulemaking issued by FRA and RSPA regarding the inspection and testing of tank cars.

[The information follows:]

The Safety Board's comments are being finalized and a copy will be provided to the Committee.

TRACK SAFETY STANDARDS

Mr. PRICE. What progress is the FRA making in implementing the provisions of the Rail Safety Enforcement and Review Act which call for a review of track safety standards, including procedures associated with the installation and maintenance of continuous welded rail?

[The information follows:]

On November 16, 1992, the Federal Railroad Administration (FRA) issued an ANPRM, Docket No. RST-90-1, for miscellaneous revisions to the 1982 TSS. The purpose to announce a series of workshops for the railroad industry, government, and any other affected parties to have an opportunity to provide input in assisting the FRA to make a determination on those sections of the TSS that FRA is considering for amendment or deletion.

The FRA stated that this was a result of four primary sources: the Brotherhood of Maintenance of Way's petition for revisions; an Association of American Railroad list of recommendations for revisions; the FRA's own research; and the FRA's experience with enforcement of the present TSS. Several areas were identified to be discussed at each of the four workshops: Newark, New Jersey—responsibility of track owners, inspector qualifications, and restoration/renewal of track; Atlanta, Georgia—continuous welded rail, lateral track restraint, gage restraint measurement, and vehicle track interaction; Denver, Colorado—defective rails, internal rail inspections, system tolerance and reliability, and torch cut rail; Washington, D.C.—excepted track, inspection requirements, and other significant issues.

The FRA has not established what changes or revisions will be made. A NPRM will be issued when the data has been reviewed and evaluated. No date has been projected at this time for issuing the NPRM.

CLEVELAND REGIONAL TRANSIT AUTHORITY ACCIDENT

Mr. PRICE. In April 1993, the Safety Board issued its report on the July 2, 1991, rear-end collision involving two Greater Cleveland Regional Transit Authority trains. What was the probable cause of the accident, as determined by the Safety Board. What recommendations did you issue?

[The information follows:]

The National Transportation Safety Board determined that the probable cause of the July 2, 1991, rear-end collision involving two Greater Cleveland Regional Transit Authority trains was the inadequate oversight of train operations and inconsistent enforcement of the operating rules by the Greater Cleveland Regional Transit Authority and the subsequent unauthorized deactivation of the automatic train control system by train 6612's operator.

On May 24, 1993, the National Transportation Safety Board issued the following safety recommendations to the Greater Cleveland Regional Transit Authority: Implement a management oversight program that effectively supervises train operations and enforces the operating rules. (Class II, Priority Action) (R-93-1); develop and implement procedures for recording the use of the cab-signal cutout to help prevent its unauthorized operation, and increase accountability for granting permission to use the cab-signal cutout and limit operator access to it by allowing operator access only when authorized by the supervisor. (Class II, Priority Action) (R-93-2); periodically update The Rail Rule Book to reflect current practices, dating each revision so it can be readily verified as the most current version, and rewrite The Rail

Rule Book to clarify or eliminate ambiguous and confusing rules. (Class II, Priority Action) (R-93-3).

The National Transportation Safety Board reiterated the following safety recommendation to the State of Ohio: Develop or revise, as needed, existing programs to provide for continual and effective oversight of rail rapid transit safety. The elements of the oversight program should include reviews of maintenance and inspection records, accident investigation activities, audits of system safety program plans, reviews of the transit system safety department, reviews of training programs, monitoring of accident data, and periodic inspections of equipment and infrastructure. (R-91-37).

Mr. PRICE. What has been the Greater Cleveland Regional Transit Authority's response to your recommendations?

[The information follows:]

The Greater Cleveland Regional Transit Authority (GCRTA) responded to safety recommendations R-93-1 through -3 on July 26, 1993, and the three safety recommendations have been placed in an Acceptable Action status.

The Safety Board was advised that the GCRTA has established a permanent rail oversight committee; no longer allows rail operators to use the cab-signal cutout mode without permission from the tower supervisor and that the superintendent of rail operations reviews the log daily to ensure that the permission system is not being abused; and has rewritten the Rail Rule Book to reflect current practices and has removed ambiguous and/or conflicting rules. Also, the color of the book's binding changes for each edition to prevent confusion with earlier publications.

RAIL RAPID TRANSIT SAFETY

Mr. PRICE. Did this accident investigation result in any new issues concerning state monitoring of rapid transit safety?

[The information follows:]

No new issues concerning State monitoring of rapid transit resulted from this accident investigation.

Mr. PRICE. Last year, the Federal Transit Administration issued a notice of proposed rulemaking to require states to oversee the safety of rail transit systems. What is the Safety Board's view of the approach the FTA is taking regarding transit safety oversight?

[The information follows:]

In a letter dated February 7, 1994, the National Transportation Safety Board provided comments on the Federal Transit Administration's (FTA) notice of proposed rulemaking (NPRM) to require states to oversee the safety of rail transit systems, which was issued on December 9, 1993. In general, the Safety Board supports the intent of the NPRM and believes that implementation of the rulemaking will satisfy the goal of the Board's Safety Recommendations R-91-33 and -35, which were issued as a result of our safety study, "Oversight of Rail Rapid Transit Safety," published in July 1991.

Notwithstanding the Board's general support of the NPRM, the Board did question the need for the FTA to detail in the final rule several provisions that the Board believes could best be handled by the oversight agency in conjunction with state and local authorities, including the dollar threshold that would trigger an investigation, on-site security measures, and the role of the oversight agency during the planning and construction phases. The Board urged the FTA to simply provide guidance in these areas.

The Safety Board staff attended the FTA's recent public hearing on March 9, 1994, which was held to provide interested parties the opportunity to comment further on the NRPM. Although the Safety Board supports every effort to obtain a complete and thorough docket on this issue, the Board is becoming increasingly concerned with the timeframe for issuing a final rule. The Safety Board hopes that the FTA will expedite efforts on this issue.

APTA TRIENNIAL SAFETY AUDITS

Mr. PRICE. Has the issue of using the triennial APTA safety audits been resolved to NTSB's satisfaction?

[The information follows:]

The Board's concern began when the Federal Transit Administration (FTA), in its advanced notice of proposed rulemaking (ANPRM) on safety oversight of rail rapid transit operations, raised the question of use of the triennial APTA safety audits as a means of satisfying their oversight responsibilities. However, the notice of proposed rulemaking (NPRM) did not propose the use of the triennial APTA safety audits as a means of compliance. Although the issue was raised once again by industry representatives at the March 8, 1994, FTA public hearing on safety oversight, the Board does not anticipate that the FTA will permit use of the triennial audit in the final rule. Assuming that the final rule is similar to that proposed in the NPRM and does not permit the triennial APTA safety audit to be used as the oversight mechanism, the issue will have been resolved to the Board's satisfaction.

COAST GUARD INSPECTION PROCEDURES

Mr. PRICE. The Coast Guard issued in January a notice of proposed rulemaking to revamp its regulations for small passenger wooden vessels, following the December 5 sinking of the *El TORO II*, which was returning from a fishing trip in the Chesapeake Bay. One of the noteworthy aspects of that accident is that an insurance inspector had inspected the vessel and was in the process of recommending that insurance be denied due to the vessel's lack of seaworthiness, even though the vessel had passed a Coast Guard inspection. What has the Safety Board learned about the Coast Guard's vessel inspection procedures as a result of your participation in the Coast Guard's investigation of this accident?

[The information follows:]

As a result of our investigation into the sinking of the *EL TORO II*, the Safety Board is evaluating:

1. The adequacy of the guidance provided to USCG field inspectors for inspecting wooden vessels.
2. The adequacy of inspection techniques available to inspectors of wooden vessels.

SMALL PASSENGER VESSEL RULEMAKING

Mr. PRICE. Have you examined the Coast Guard's proposed rulemaking. If so, does it adequately address your concerns?

[The information follows:]

We are currently examining the Coast Guard supplemental notice of proposed rulemaking (SNPRM) entitled, "Small Passenger Vessel Inspection and Certification; Proposed Rule," which was published in the Federal Register on January 13, 1994. This regulation project is quite lengthy and very involved, and we are preparing our comments on the proposed rules for submission to the Coast Guard by the end of the comment period (June 13, 1994).

COMMERCIAL FISHING VESSEL SAFETY

Mr. PRICE. What issues remain on the Safety Board's action agenda for improved commercial fishing vessel safety?

[The information follows:]

The National Transportation Safety Board remains concerned that the inspection of commercial fishing vessels for safety equipment requirements enacted by Congressional legislation in 1988 has not been formalized. The Board also remains concerned over the safety training provided for crews of uninspected commercial fishing vessels.

FOREIGN PASSENGER VESSELS

Mr. PRICE. In July 1993, the Safety Board adopted a special report on accidents involving foreign passenger ships operating out of

U.S. ports. Please discuss the major findings and recommendations of that report.

[The information follows:]

The Board's special investigation report on accidents involving foreign passenger ships operating from U.S. ports was a follow-up to the survival factors issues addressed in a previous study, *Passenger Vessels Operating From U.S. Ports*.

The International Maritime Organization (IMO) has made great strides in improving the safety of passenger ships, especially with regard to fire safety issues. However, additional enhancements can further assure the level of passenger protection.

In cruise ship accidents studied by the Safety Board since that 1989 passenger vessel safety study, a number of recurring safety problems have surfaced that have not been addressed by the IMO, such as: crew firefighting training; crew training and proper onboard procedures to evacuate passengers trapped in their staterooms; communications with a common language among crewmembers and between crewmembers and passengers; and storing additional life jackets near muster stations.

On July 26, 1993, the National Transportation Safety Board recommended that the Coast Guard propose to the next IMO Maritime Safety Committee meeting that:

- standards for a basic level of emergency training for passenger vessel crewmembers be established and cruise ship companies be required to certify that such a program has been properly completed; (Class II, Priority Action) (M-93-35)
- advanced firefighting standards be established for crewmembers responsible for fighting fires and ship companies be required to certify that such a program has been properly completed; (Class II, Priority Action) (M-93-36)
- more realistic emergency drills be required aboard passenger vessels to provide crewmembers with the specialized skills necessary to insure passenger safety, including rescuing passengers trapped in their staterooms; (Class II, Priority Action) (M-93-37)
- the desirability and feasibility of equipping passenger staterooms personal protection breathing devices that could be worn by passengers escaping from a smoke-filled environment should be analyzed; (Class II, Priority Action) (M-93-38) and
- the desirability and feasibility for equipping passenger staterooms with an emergency call system by which trapped passengers can signal their situation should be analyzed (Class II, Priority Action) (M-93-39).

QUEEN ELIZABETH 2 RECOMMENDATIONS CG RESPONSE

Mr. PRICE. Please insert in the record the response of the Coast Guard to the recommendations issued by the Safety Board in the investigation of the August 7, 1992, grounding of the Queen Elizabeth 2.

[The information follows:]

U.S. Department
of Transportation
**United States
Coast Guard**



Commandant
United States Coast Guard

Washington, D.C. 20593-0001
Staff Symbol G-MMI-1
Phone: (202) 267-1424

16732

SEP 27 1993

The Honorable Carl W. Vogt
Chairman, National Transportation
Safety Board
490 L'Enfant Plaza East, S.W.
Washington, DC 20594

Dear Mr. Chairman:

I have reviewed the National Transportation Safety Board's marine accident report concerning the grounding of the passenger vessel QUEEN ELIZABETH 2 near Cuttyhunk Island, Vineyard Sound, Massachusetts, on August 7, 1992. The following is my updated response to reiterated safety recommendation M-91-028 and my initial response to safety recommendations M-93-017 through M-93-026, which were issued by the Board to the Coast Guard as a result of its investigation of this casualty.

M-91-028

Amend 33 CFR 164.11(k) to require that masters and pilots discuss and agree beforehand to the essential features and relevant checkpoints of maneuvers they expect to undertake.

Status

I partially concur with this recommendation. In this instance, making a high speed transit in relatively shallow water, it would have been prudent for the master and pilot to discuss the proposed route. Because of this, the Coast Guard investigating officer recommended citing the master and pilot for failure to comply with 33 CFR 164.11(k). However, the Coast Guard remains unconvinced that a more detailed rule would have prevented this failure to communicate. Because there are innumerable variables that potentially could be discussed, such a regulation would serve only as a way to penalize the master and pilot after a casualty. In 1992, the Navigation Safety Committee (NAVSAC) discussed a requirement for a prearranged plan between the master and pilot. The Council felt that the master and pilot already have the authority and opportunity to obtain information about the transit. Therefore, the Coast Guard does not anticipate proposing changes to 33 CFR 164.11(k) regarding master/pilot communications at this time, and I request that this recommendation be closed.

M-93-017

Establish standards and curricula for bridge resource management training for Federal pilots licensed by the U.S. Coast Guard.

Status

I concur with this recommendation. The Coast Guard will initiate a rulemaking project to establish the recommended standards and curricula. I will keep the Board informed of our progress in the regulatory project.

M-93-018

Propose to the International Maritime Organization that standards and curricula be developed for bridge resource management training for the masters, deck officers, and pilots of ocean-going ships.

Status

I partially concur with this recommendation. The United States will propose at the 25th Session of the International Maritime Organization (IMO) Subcommittee on Standards of Training and Watchkeeping (STW) that standards and curricula be developed for bridge resource management training for masters and deck officers of seagoing ships. However, the Coast Guard views pilot qualifications as a matter for port State regulation. I will keep the Board informed of our progress regarding this recommendation.

M-93-019

Propose to the International Maritime Organization that the masters, deck officers, and pilots of ocean-going ships be required to successfully complete initial and recurrent training in bridge resource management.

Status

I partially concur with this recommendation. The United States will propose that IMO agree in principle to requiring masters and deck officers on seagoing ships to complete initial and recurrent training in bridge resource management. However, the Coast Guard views pilot qualifications as a matter for port State regulation. I will keep the Board informed of our progress regarding this recommendation.

M-93-020

Require that all applicants for an original or the renewal of a Federal pilot and deck officer license for vessels of more than 1,600 gross tons successfully complete a course in bridge resource management.

Status

I concur with this recommendation. The Coast Guard will initiate a rulemaking project to implement the recommended license requirements. I will keep the Board informed of our progress in the regulatory project.

M-93-021

Propose that the International Maritime Organization incorporate IMO Resolution A.601(15), "Provision and Display of Maneuvering Information on Board Ships", into the SOLAS Convention.

Status

I partially concur with this recommendation. Before proposing that Resolution A.601(15) be incorporated into the SOLAS Convention, basic research needs to be accomplished on shallow water effects on high speed ships. To accomplish this, the QE2 accident findings and other relevant information will be presented to IMO with a recommendation that further action be taken. This action should include the development of model testing criteria for high speed ships in shallow water, and a series of model tests on high speed hull forms above, below, and at the critical Froude Number. This series of model tests will bracket important parameters that affect sinkage and trim. Validation of existing computer programs for predicting sinkage and trim should also be part of the model test program. This series can then be used in combination with existing model data for tankers to rationally estimate sinkage and trim for most ship forms and speeds. Once this information is available, a rational estimate of sinkage and trim can be obtained and a recommendation can be made to incorporate relevant provisions of A.601(15) into the SOLAS Convention. I will keep the Board informed as developments occur regarding this recommendation.

M-93-022

Amend the Navigation Safety Regulations (33 CFR 164.35(g)) to require that squat characteristics be included with the maneuvering information on vessels, as recommended by IMO Resolution A.601(15) for deep-draft, high-speed vessels over 1,600 gross tons.

Status

I partially concur with this recommendation. As discussed in my response to recommendation M-93-021, sufficient information is not currently available on sinkage and trim of high speed hull forms in shallow water. I will consider implementing this recommendation when we have completed action on recommendation M-93-021.

M-93-023

Widely publicize the particulars of this accident concerning the large squat for ships at high speeds in shallow waters.

Status

I concur with this recommendation. Copies of the Coast Guard's investigation report on this casualty are being provided to IMO to disseminate the research information regarding vessel squat. In addition, we will develop material for publication in a Notice

to Mariners, Proceedings of the Marine Safety Council, or other maritime publications. I will provide copies of the articles to the Board when published.

M-93-024

Provide guidelines to boarding officers investigating marine accidents about informing marine employers of their responsibility to conduct toxicological testing and on providing assistance when necessary (such as providing sampling kits and making arrangements for testing with local approved laboratories.)

Status

I concur with this recommendation. Coast Guard investigating officers receive instruction regarding post casualty testing responsibilities and procedures during their formal instruction at the Investigating Officer Course at Yorktown, Virginia, and through field training. Guidelines are provided to investigating officers in the Coast Guard's Marine Safety Manual and in other policy documents. Information concerning the requirements for post accident testing is provided directly to marine employers from Commandant (G-MMI) and local Marine Safety Offices. Existing guidelines will be revised to provide the recommended information.

M-93-025

Propose to the International Maritime Organization a requirement that all passengers boarding vessels at intermediate ports during a voyage receive comprehensive safety and emergency instructions by qualified crewmembers soon after boarding.

Status

I concur with this recommendation. Chapter III, Regulation 18, section 3.2, of the International Convention for the Safety of Life at Sea (SOLAS), already requires instruction of passengers which embark at a port after the initiation of a voyage. In addition, IMO's Maritime Safety Committee approved "guidelines for passenger vessel safety instructions" at its 62nd session in May 1993, and invited all member governments to bring them to the attention of passenger ship owners, vessel masters and crews, and all others concerned. These guidelines provide specific recommendations on emergency instructions required to be given to passengers as per SOLAS Chapter III, Regulation 8. These recommendations address: ship evacuation philosophy; emergency escape diagrams in staterooms, public areas, and escape routes; standardized and clearly audible emergency broadcasts on the vessel's public address systems; and standardized deck and cabin numbering systems. These guidelines on emergency instructions coupled with existing SOLAS regulations satisfy the intent of this recommendation, and I request that it be closed.

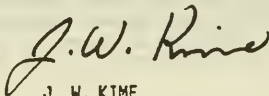
M-93-026

Propose to the International Maritime Organization that appropriate safety standards be developed to ensure the safety of disabled people aboard passenger vessels during an emergency.

Status

I concur with this recommendation. Under the Americans with Disabilities Act (ADA), the Department of Transportation (DOT) has the authority to complete studies and implement regulations for the transportation of disabled persons on passenger vessels. The General Counsel has the responsibility to promulgate regulations and policy for the Coast Guard to enforce. The Coast Guard is participating in a DOT working group on this issue, and we are presently at the initial stage in the regulatory development process. The initiation of international standards in this area should take place only after consensus is reached domestically regarding the implementation of ADA. I will continue to monitor actions in the area of domestic regulations and ensure that they are paralleled with actions at IMO as necessary.

Sincerely,



J. W. KIME
Admiral, U. S. Coast Guard
COMMANDANT

YORKTOWN CLIPPER CRUISESHIP ACCIDENT

Mr. PRICE. Please provide an update of your investigation of the August 18, 1992, accident involving the YORKTOWN CLIPPER cruise ship and include the major issues that the Safety Board will explore.

[The information follows:]

The Safety Board has completed its on-scene investigation, examined the ship's damage in drydock, collected evidence at the grounding site at low tide, communicated with all the passengers, and now is evaluating the vessel's stability when the passengers were evacuated.

The primary issues which are emerging are the adequacy of the navigational procedures routinely practiced by the watch officers, the oversight provided by the owners, the training required by the Coast Guard, and the watertight integrity of the vessel. The Board's report of this accident is expected to be considered this summer.

NOORDAM AND MOUNT YMITOS COLLISION

Mr. PRICE. Please provide an update of your investigation of the November 6, 1993, collision between the NOORDAM cruise ship and the MOUNT YMITOS and include the major issues that the Safety Board will explore.

[The information follows:]

The National Transportation Safety Board's investigation of the collision between the cruise ship NOORDAM and the bulk carrier MOUNT YMITOS is not yet completed.

The central question raised during the investigation of the collision was why none of the 8 persons on the bridge of the NOORDAM at the time of the accident did not detect the presence of the MOUNT YMITOS until just before the accident.

The Safety Board will explore the following safety issues in its investigation of the collision between the NOORDAM and the MOUNT YMITOS: The adequacy of watchstanding practices and procedures aboard the NOORDAM; the adequacy of the lookouts aboard the NOORDAM and MOUNT YMITOS; the adequacy of the visual perception of watchstanders aboard the NOORDAM; adequacy of the NOORDAM's Automatic Radar Plotting Aid (ARPA) and its 10cm and 3cm radars; the adequacy of the channels of communication between the Associated Bar Pilots and inbound vessels seeking piloting services; the lack of a vessel traffic service capable of monitoring the approaches to Southwest Pass; and adequacy of shipboard emergency procedures aboard the NOORDAM.

RECREATIONAL BOATING SAFETY IMPROVEMENT ACT OF 1993

Mr. PRICE. Please provide for the record the Safety Board's comments on the Recreational Boating and Safety Improvement Act of 1993.

[The information follows:]

**National Transportation Safety Board**

Washington, D.C. 20594

Office of the Chairman

August 13, 1993

Honorable Billy Tauzin
Chairman, Subcommittee on Coast
Guard and Navigation
Committee on Merchant Marine and Fisheries
House of Representatives
Washington, D.C. 20515-6230

Dear Chairman Tauzin:

Thank you for your letter dated August 2, 1993, requesting our comments on draft legislation entitled "Recreational Boating Safety Improvement Act of 1993."

After reviewing the measure, the National Transportation Safety Board believes that its provisions regarding use of personal flotation devices for children, boating while intoxicated, and mandatory education for violators will help to make recreational boating safer.

For instance, in our safety study on recreational boating safety the Safety Board found it is incumbent on the States and the U.S. Army Corps of Engineers to increase the level of use of personal flotation devices (PFDs) in order to save lives. The Safety Board consequently recommended that mandatory use of PFDs for children be considered. The draft's provisions prohibiting operation of a recreational vessel under 26 feet unless children under a certain age wear PFDs is consistent with the intent of the Safety Board's recommendation. Although our safety report did not specify an age at or below which children should be required to wear PFDs, the Safety Board believes as many children as possible should be covered by PFD usage requirements.

Our safety study also prompted recommendations calling on states to enact or stiffen laws on alcohol use and to require testing of boat operators in all fatal boating accidents and if the operator is suspected of being impaired, regardless of whether fatalities occurred. The Safety Board is pleased that the discussion draft addresses these issues. We are concerned that, as written, the measure could discourage states from enacting blood alcohol concentration (BAC) levels below the 0.10 BAC threshold contained in the draft. Several states already provide for a BAC level lower than 0.10 and the Safety Board believes other states may wish to adopt a similar position in order to reduce boating while intoxicated accidents.

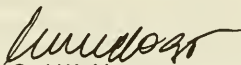
The Safety Board notes with interest the draft's provisions requiring individuals to take a qualified boating safety course if they violate certain standards. The accident data and case studies presented in the Safety Board's study indicate that

Honorable Billy Tauzin
page 2

there is a clear need for demonstrating operator knowledge of safe boating rules and skills prior to operating a recreational vessel and we believe the Coast Guard should be urged to address this issue as a way to prevent accidents. Further, while only addressing operators demonstrating unsafe boating practices, the discussion draft provisions should contribute towards improving the knowledge and skills of recreational boat operators.

The Safety Board appreciates this opportunity to comment on the discussion draft and we look forward to working with you on the other recommendations contained in our report not covered in the measure you provided, such as the need for the Coast Guard to implement a system comparable to National Highway Traffic Safety Administration's Fatal Accident Reporting System.

Sincerely,

A handwritten signature in black ink, appearing to read "Carl W. Vogt", written in a cursive style.

Carl W. Vogt
Chairman



Office of the Chairman

National Transportation Safety Board

Washington, D.C. 20594

January 7, 1994

Honorable Billy Tauzin
Chairman, Subcommittee on Coast Guard and Navigation
Committee on Merchant Marine and Fisheries
House of Representatives
Washington, D. C. 20515-6230

Dear Chairman Tauzin:

Thank you for your letter dated December 20, 1993, requesting our comments on the draft legislation entitled "Recreational Boating Safety Improvement Act of 1993."

After reviewing the measure, the National Transportation Safety Board believes that the provisions regarding use of personal floatation devices (PFDs) for children, boating while intoxicated, improved accident reporting, and mandatory education for violators will help to make recreational boating safer.

The Safety Board's study on recreational boating safety recommended that mandatory use of PFDs for children be considered by the states and the US Army Corps of Engineers. The provisions of the draft legislation prohibiting operation of a recreational vessel under 26 feet unless children 12 years of age or younger wear PFDs when the child is on an open deck is consistent with the intent of the Safety Board's recommendation. Although our safety study did not specify an age at or below which children should be required to wear PFDs, we believe as many children as possible should be covered by PFD usage requirements.

Our safety study also prompted recommendations asking states to enact or stiffen laws on alcohol use, and to require testing of boat operators in all fatal boating accidents if the operator is suspected of being impaired. The Safety Board is pleased that the draft legislation addresses these issues enabling states to enact blood alcohol concentration (BAC) levels below the 0.10 percent BAC threshold.

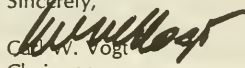
The Safety Board is also pleased that the draft legislation includes a requirement that within one year of enactment, the Secretary of Transportation submit a plan to increase reporting of vessel accidents to appropriate state law enforcement officials. The Safety Board would like the plan to discuss the applicability of a system comparable to the National Highway Traffic Safety Administration's Fatal Accident Reporting System.

Honorable Billy Tauzin
page 2

We note that the draft legislation includes provisions requiring individuals to take a qualified boating safety course if they violate certain standards. As mentioned in our letter to you dated August 13, 1993, the accident data and case studies presented in the Safety Board's study indicate that there is a need for all operators to demonstrate knowledge of safe boating rules and skills prior to operating a recreational vessel. The Board believes the Coast Guard should be urged to address this broader issue as a way to prevent accidents.

The Safety Board appreciates this opportunity to comment on the discussion draft.

Sincerely,


Carl W. Vogt
Chairman

HAZARDOUS MATERIALS SAFETY RECOMMENDATIONS

Mr. PRICE. What do you believe are the most important actions RSPA can take to improve the agency's hazardous materials program?

[The information follows:]

The Board believes that the Research and Special Programs Administration (RSPA) needs to improve accident and incident data to identify important trends or potential problems related to the performance of hazardous materials containers. In 1992, the Board recommended that RSPA improve these data bases to help evaluate the performance of cargo tanks involved in accidents. The Board also believes that RSPA should work with the Federal Railroad Administration to issue final rules in Dockets HM-175A and HM-201. The Board believes that tank car safety improvements contained in HM-175A are long overdue. The Board also believes that improved periodic inspections and testing for tank cars, contained in HM-201, are needed because current periodic inspections and tests are not effective for identifying tank car structural defects.

HAZARDOUS MATERIALS RECOMMENDATIONS

Mr. PRICE. What progress has RSPA made in addressing the Safety Board's recommendations from its investigation of hazardous materials spills from overturned trucks?

[The information follows:]

The Research and Special Programs Administration (RSPA) advised the Board that it would work with the Federal Highway Administration to evaluate the performance of cargo tank rollover protection and to improve the collection of data necessary to identify patterns of cargo tank equipment failure. However, RSPA has not provided the Board any information on the progress of work in this program.

UNDERGROUND STORAGE SYSTEM REGULATIONS

Mr. PRICE. In November 1993, the Safety Board issued its report concerning the April 7, 1992, underground storage cavern explosion in Brenham, Texas. That accident killed three people and injured another 21 people. The Safety Board concluded that a lack of federal and state regulations governing the design and operation of underground storage systems contributed to the accident. What was the basis for the NTSB's conclusion?

[The information follows:]

The safety standards issued by the Office of Pipeline Safety (OPS) were not applicable to Highly Volatile Liquids (HVL) or other liquid petroleum underground storage facilities, primarily because the industry standards from which OPS derived its standards did not apply to underground storage facilities. During the 25 years the DOT has had safety jurisdiction over liquid pipeline operations, several accidents involving HVL underground storage facilities have occurred, although their consequences were not as great as at Brenham. Even so, the OPS has not acted to regulate the safety of these facilities. The Safety Board believes that the OPS should have taken at least enough notice of such accidents to have initiated reporting requirements to assist it in assessing whether additional action was warranted.

The Texas Railroad Commission (TRC) has the authority to regulate underground storage facilities. However, the TRC did not consider that its authority extended to establishing safety standards for wellhead safety control systems. Consequently, Brenham station's wellhead safety equipment was never inspected by its personnel.

Mid-America Pipeline Company's (MAPCO) pipeline operations were subject to the OPS pipeline safety requirements and to those of the TRC. Texas, like most other States, has a small staff dedicated to monitoring the compliance of pipeline operators with safety standards. The OPS rates the TRC's pipeline safety program as one of the nation's best, yet major inadequacies in MAPCO operations went undetected. As discussed earlier, MAPCO's emergency preparedness coordination with communities adjacent to its pipelines, employee training and oversight, and remote monitoring of Brenham station operations were all deficient, and those deficiencies were not identified before this accident by the regulatory compliance inspections. The Board believes that the TRC and the OPS should reassess Texas' pipeline safety program to identify resources and/or system improvements that needed to minimize the potential for omissions in future compliance inspections.

This accident and the lack of regulatory public safety oversight posed by more than 1,400 liquid and more than 400 natural gas underground storage facilities demonstrate that:

- o The OPS needs to define in its regulations standards to protect the public from any threat posed by the operation of HVL underground storage facilities.
- o The American Petroleum Institute (API) needs to complete its recommendations about solution-mined storage caverns and to develop recommendations about the other types of underground storage facilities that are used to store dangerous materials, such as HVLs and natural gas.

- o The American Gas Association (AGA) needs to cooperate with the API in completing and developing recommendations about underground storage facilities.
- o States that have HVL underground storage facilities need to develop standards to protect public safety and need to effectively oversee the facilities.

NATURAL GAS PIPELINE SAFETY REGULATIONS

Mr. PRICE. What was RSPA's response to the Safety Board's recommendation that the Office of Pipeline Safety should amend its natural gas pipeline safety regulations to specifically include safety standards on underground natural gas storage facilities that are adequate to protect public safety?

[The information follows:]

The National Transportation Safety Board adopted the final recommendations for the Brenham report on November 4, 1993. The Research and Special Programs Administration (RSPA) has not yet responded to recommendation P-93-09 which called for regulations for both highly volatile liquids and natural gas.

Even though RSPA has not responded to the Safety Board, we are encouraged by RSPA's FY 1995 budget submission that states "that underground storage of highly volatile liquids, other hazardous liquids, and natural gas require comprehensive analysis." The submission also proposes a study to confirm the location, capacity and number of underground storage caverns, inspection of a limited number of cavern operations, determination of which states have jurisdiction over underground storage caverns, and to assess the risk of these caverns to determine where they should be placed within RSPA's risk analysis program for regulations.

PIPELINE EMPLOYEE TRAINING

Mr. PRICE. What progress has RSPA made in issuing regulations that require operators of pipelines to develop and conduct training programs for pipeline employees?

[The information follows:]

The Research and Special Program Administration's (RSPA) Regulatory Agenda published in the Federal Register, October 25, 1993, for Parts 192 and 195 states: that previous proposals have been considered into rulemaking relative to Qualification of Pipeline Personnel. Training and qualification standards are proposed for personnel involved in operations and maintenance of gas and hazardous liquid pipelines. This rulemaking is considered significant but no legal deadline has been set.

The Safety Board identified several factors that possibly resulted in human error and contributed to the Mid-America Pipeline Company Natural Gas Liquids, Inc., highly volatile liquids release from underground storage at Brenham, Texas on April 7, 1992. The report supports the need for training, and establishing qualifications or certification of pipeline employees.

EMERGENCY FLOW RESTRICTING VALVES

Mr. PRICE. On January 19, 1994, RSPA issued an advance notice of rulemaking regarding emergency flow restricting valves and leak detection systems for hazardous liquid pipelines. Has the Safety Board commented on that rulemaking and, if so, please provide a copy of your response for the record.

[The information follows:]

The National Transportation Safety Board is quite interested in this rulemaking and we have issued recommendations in the past regarding emergency flow restricting valves and leak detection systems for hazardous liquid pipelines. However, after reviewing the ANPRM, we determined that the numerous questions posed by OPS are addressed to the industry and their operational history, and we can not provide information to those questions. We are interested in the responses of the industry and will review them as part of our on-going special investigation on petroleum product pipelines as a result of the Reston, Virginia and Fountain Inn, South Carolina accidents that involved Colonial Pipeline Company.

EXCESS FLOW VALVES RULEMAKING

Mr. PRICE. The issue of excess flow valves on gas service lines has been on the Safety Board's most wanted list for some time. On July 6, 1993, RSPA issued an advance notice of rulemaking on this

subject. Please provide for the record a copy of the Safety Board's response to RSPA's ANPRM.

[The information follows:]

Below is a copy of the National Transportation Safety Board's July 6, 1993, comments on excess flow valve proposed rulemaking.



National Transportation Safety Board

Washington, D.C. 20594

July 6, 1993

Office of the Chairman

Dockets Unit, Room 8421
Office of Pipeline Safety Programs
Research and Special Programs Administration
U.S. Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

Dear Sir:

The National Transportation Safety Board has reviewed the notice of proposed rulemaking (NPRM) "Excess Flow Valve Installation on Service Lines" (PS-118, Notice 2). The Safety Board believes that the use of these valves will substantially reduce the consequences of gas pipeline accidents by saving lives and lessening the extent of property damages. We have included the benefits afforded by excess flow valves (EFVs) as one of our "most wanted" transportation safety improvements. The Safety Board is pleased that the Research and Special Programs Administration (RSPA) now recognizes the public safety improvements they offer and urges RSPA to expeditiously implement a final rule on their use.

The NPRM includes several issues and questions on which the Safety Board offers the following comments:

1. RSPA questions whether the use of excess flow valves (EFVs) will decrease the use of local emergency agency crews, resulting in cost savings. Except for individual pipeline operators that routinely use EFVs, no one has useful data to answer this question. Bay State Gas Company, Inc., has 16 percent of its 250,000-plus service lines equipped with EFVs and is the only operator, of which we are aware, that has released data on its experiences with EFVs. Examples of EFVs operating successfully to prevent potentially hazardous situations from developing were cited in the November 1989 issue of *Pipeline & Gas Journal*. These successful operations took place at 34 locations in 18 towns that Bay State Gas serves. That article also reported that in a typical year, EFVs operated in 30 to 40 incidents of excavation damage. Each time the EFVs operated, major consequences usually associated with pipeline accidents were prevented without calling on local emergency agencies.

The RSPA should also consider the advantages EFVs provide after gas explosions or other emergency conditions when substantial damage to gas service lines results. The public, on-scene gas employees and emergency response crews are protected from hazards associated with the continued flow and migration of gas because gas flow can be promptly and automatically stopped. Since the report

on a 1971, gas accident in North Richland Hills, Texas,¹ these hazards have often been discussed in Safety Board pipeline accident reports. Enclosed is a partial list.

2. The NPRM proposes to limit application of the EFV requirements to service lines that operate at not less than a pressure of 10 pounds per square inch, gauge (psig) pressure. The Safety Board does not understand RSPA's rationale for increasing the lower use threshold from 5 to 10 psig pressure. Considerable information is available on EFVs designed to function at 5 psig pressure or more. Also, the proposal's wording unnecessarily exempts operators of gas systems in which the system pressure might occasionally fall below the minimum operating pressure of available EFVs. This could apply to operators that could prove their systems operated at less than 10 psig pressure, even if only once during the system's history.

Tests have shown that no hazard is created when the pressure in a properly sized service line falls below the EFV manufacturer's rated minimum operating pressure. Under such circumstances, the operator can still meet customer gas demands; however, it can't rely on EFVs to stop the gas flow if the service line ruptures or is severely damaged. The Safety Board believes it far more prudent for RSPA to provide the protection afforded by EFVs during the majority of times that gas system pressures are within the EFV operating parameters than for RSPA to withhold from the public the benefits of EFVs simply because the gas system pressure has once, and might infrequently again, fall below the minimum rated operating pressure of available EFVs. Consequently, the Safety Board urges RSPA to revise this provision to require EFVs on any gas service line that is normally operated at pressures above the minimum rated pressure of any commercially available EFV.

3. RSPA believes that some EFVs may not meet the manufacturer's specifications and proposes that each be tested before being used on gas service lines. The Safety Board concurs with RSPA's proposal to require that EFVs be tested at the time of installation to assure that they function. The tests made to confirm that EFVs conform to standards could be made by manufacturers and the results certified to EFV users just as is done for most pipe, fittings, and valves used in gas systems.

The Safety Board supports a requirement that EFVs be capable of closing within a specified percentage of the manufacturer's rated flow and that this be confirmed through tests. RSPA has proposed 10 percent, and the Safety Board questions why it selected this value. The Safety Board is not aware of any presently manufactured valve that can meet this criterion; however, most EFVs

¹Pipeline Accident Report--Lone Star Gas Company, North Richland Hills, Texas, October 4, 1971 (NTSB/PAR-72/3).

can consistently meet a 15 percent criterion. RSPA should discuss with manufacturers and major users of EFVs a reasonable and achievable value before establishing the performance criterion.

4. RSPA is concerned about the operations of EFVs. RSPA's concerns are the same as those expressed in comments on the advance notice of proposed rulemaking (ANPRM) by EFV non-users: inadvertent closure, failure to reset, freezing on rural lines, and false closure when system pressures are lower than the minimum EFV operating pressure. These concerns are not based on operating experience and are not supported by the experiences of EFV users who have operated hundreds of thousands of EFVs over many years. RSPA's own report, *Excess Flow Valve Benefit/Cost Analysis*, reveals that few problems have been experienced using current EFV designs. The instances of EFV false closures identified in the RSPA analysis, in fact, were operator errors.

In the Safety Board's review of comments on the RSPA ANPRM under this docket, no false closures of modern EFV designs were documented. The unintended EFV closures were traced to improperly engineered service lines, improper EFV installation, and improper employee actions. If RSPA can document any false closures due to the EFV or its design, then RSPA should establish performance criteria that will ensure that only those valves that can provide proper performance are selected for use by operators.

The Safety Board believes that RSPA should recognize the decades of experience that the East Ohio Gas Company, the Bay State Gas Company, the UGI Corporation, the Elizabethtown Gas Company, and others have in using the more than 1 million EFVs now in service in the United States.

5. EFVs will not be required when an operator is able to demonstrate from prior experience that contaminants exist in the gas system that will cause a malfunction of the EFV. The Safety Board agrees that it would not be prudent to require that EFVs be used in systems containing contaminants sufficient to cause an EFV malfunction. However, based on tests performed by the Institute of Gas Technology, the Gas Research Institute, and EFV manufacturers and users, finding in current natural gas systems the quantities of contaminants needed to make current EFVs malfunction would be unusual. Consequently, the Safety Board believes that RSPA should state in its requirements the documentation necessary for a gas operator to successfully claim an exemption from installing EFVs.

6. Disallow the use of EFVs equipped with a bypass because they may be unsafe. The only support RSPA cites in the NPRM for its decision to not allow bypasses is the scenario in which gas service may be restored unsafely without notice to the gas company by an excavator who damages a service line that is equipped with an EFV containing a bypass. RSPA cited an accident that occurred on February 4, 1986, at Crystal Springs, Mississippi, on a commercial

service line. The Safety Board investigated the accident and found that the contractor, while excavating with a backhoe, had damaged a 1/2-inch plastic gas service line operating at 28-psig pressure. The contractor repaired the damage without notice to the gas company by installing a nonapproved compression coupling over the damaged pipe segment and reburying the service line. The plastic pipe subsequently separated from the nonapproved compression coupling and the escaping gas flowed through a sewer line into a furniture store, where it ignited and exploded.

The fact that gas was escaping may have motivated the contractor to immediately repair the failed service line rather than notify and wait for the gas operator to repair it. Had an EFV been on the service line, the gas flow would have immediately ceased rather than blowing under high pressure into the area where the contractor was working. If the work area had been made safe by the EFV, the contractor would have been able to continue his work and might then have been content to call the gas company to make the repair rather than attempt it himself. Furthermore, gas flow to the furniture store would have stopped, and this stoppage should have prompted the store owner to notify the gas company. The Safety Board believes that a contractor who is determined to circumvent the established process can easily work on a service line break whether or not the service line has an EFV and whether or not the EFV has a bypass.

This accident did not involve a residential service line or an EFV, nor does it support RSPA's position against the use of EFVs with bypasses. By proposing to eliminate the use of bypasses in EFVs, RSPA is acting contrary to the collective experience and wisdom of gas operators who have voluntarily installed EFVs over the years to provide increased safety for their customers. RSPA's docket contains no comment by EFV users in support of EFVs without bypasses. Additionally, no accident has been reported to RSPA in which using the EFV bypass has caused or contributed to an accident. The Safety Board urges RSPA to study the experiences of EFV users and to develop safe, cost-effective requirements on using EFVs.

The Safety Board recognizes that the bypasses installed in EFVs are not uniformly designed. Some high-pressure gas systems may allow excessive quantities of gas to continue flowing after some EFVs operate. RSPA should address this issue by limiting the amount of flow through a bypass. Then, if a false closure of an EFV occurs, the primary gas flow would be shut off. However, the bypass flow rate should not be enough to operate equipment so the affected customer will promptly notify the gas system operator of the gas outage. RSPA should not prohibit the use of bypasses unless it can substantiate that EFVs with bypasses present an unreasonable risk to public safety as compared to EFVs without bypasses. The Safety Board believes that, as written, RSPA's proposal to not allow bypasses is not supported.

7. RSPA requested suggestions on EFV design, installation, and operational performance standards. The Safety Board has consistently supported RSPA's inclusion of EFV performance standards in the Federal regulations. Performance standards are necessary to ensure that all EFVs achieve the desired safety benefits and to prohibit the use of nonconforming EFVs. Consequently, the Safety Board believes that RSPA should establish EFV performance criteria and offers the following examples:

The valve must be capable of functioning properly at normal system pressures.

The valve must remain in the open position when system pressures are less than the manufacturer's rated minimum operating pressure and the gas flow through the service line is less than the maximum rated flow of the customer service meter.

The valve must be capable of operating correctly at temperatures the gas service line can reasonably be expected to experience.

During tests, the valve should close within a specified percentage of the closure flow published by the manufacturer.

The minimum flow rate through the valve at a given inlet pressure that causes closure should be at least 1.5 times the maximum customer meter flow rate.

The maximum flow rate through the service line (piping, fittings, and valves) at a specific inlet pressure must be greater than the maximum closure flow rate of the EFV at its inlet pressure.

The EFV must be installed in or at the service/main tapping tee for new installations and as near the gas main as is economically feasible for replacement service lines.

The valve must be capable of functioning properly when rust, dust, and particulate matter are present in quantities normally contained in correctly designed and properly maintained gas systems.

Correct functioning of the valve should not be impaired by external variables such as vibration and natural magnetic forces.

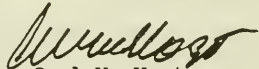
After valve closure, a valve equipped with an internal bypass should be designed to restrict passage of gas downstream to a rate no greater than a specified percentage of its rated maximum trip flow rate.

After valve closure, a valve not equipped with an internal bypass should be designed to restrict the flow of gas downstream to no more than 0.1 standard cubic foot per hour per each inch of nominal valve diameter.

Valves supplied for use in gas systems should be manufactured in compliance with a quality control procedure adequate to ensure that each valve conforms to the pressure ratings, closure flow rates, and, as applicable, the bypass or positive closure requirements.

The Safety Board appreciates RSPA's recent actions on implementing the safety improvements that can be achieved by using EFVs on residential gas service lines. We urge RSPA's continued diligence until these improvements are realized. Should RSPA have questions about our comments, the Safety Board will be pleased to discuss and clarify them.

Sincerely,



Carl W. Vogt
Chairman

Enclosure

Accidents Investigated by NTSB
In Which Excess Flow Valves Could
Have Substantially Reduced Consequences

<u>Accident Date</u>	<u>Location</u>	<u>Event</u>	<u>Pressure</u>	<u>Casualties</u>	<u>Pipe</u>
2/15/76	Rudolph, WI	Coupling Pullout	35 psig	1 fatal	Valve on 3/4" steel
6/19/76	Enola, PA	Outside Force Damage	52 psig	3 fatal	3/4" steel
8/24/76	West Hartford, NY	Outside Force Damage	22 psig	1 fatal	1" steel
12/10/77	Tempe, AZ	Outside Force Damage	38 psig	1 fatal	1 3/4" P.E.
2/6/78	Oxon Hill, MD	Vandalism	20 psig	6 inj.	3/4" steel
6/5/79	Detroit, MI	Vandalism	-----	1 fatal	7/8" plastic
5/79	Albuquerque, NM	Coupling Pullout	38 psig	2 fatal	3/4" steel
8/15/79	Seat Pleasant, MD	Coupling Pullout	18 psig	1 inj.	3/4" steel
10/13/79	Chrisman, IL	Backhoe Fractured Pipe	28 psig	1 fatal	1 1/4" steel
10/24/79	Stanardsville, VA	Coupling Pullout	15 psig	13 inj.	1 1/4" steel
2/21/80	Cordele, GA	Coupling Pullout	22 psig	3 fatal 5 inj.	1" steel
9/28/80	Keller, TX	Coupling Pullout	15 psig	1 fat.	1" steel
9/30/80	Cicaro, IN	Trenching machine fractured fitting	35 psig	2 inj.	3/4" steel
1/15/81	West Catasauqua, PA	Coupling Pullout	40 psig	1 fatal 4 inj.	3/4" steel

3/31/81	Homewood, AL	Uprooted tree fractured fitting	11 psig	*None	1 1/4" steel
5/14/81	Fond du Lac, WI	Vehicle hit gas meter	60 psig	1 inj.	1" plastic
6/29/81	Memphis, TN	Coupling Pullout	17 psig	2 fatal 5 inj.	3/4" steel
8/13/81	Seattle, WA	Outside force damage	100 psig	3 inj.	1" steel
8/14/81	Harrisburg, PA	Vehicle hit gas meter	9 psig	*None	3/4" steel
9/11/81	Bewey, OH	Vehicle hit gas meter	223 psig	1 fat.	1" steel
12/23/81	Willowick, OH	Coupling Pullout	30 psig	1 fat. 1 inj.	5/8" copper
1/19/82	Woodmere, NY	Pipe failure at threads	42 psig	*None	1 1/4" steel
4/18/82	Thibodaux, LA	Pipe failure	23 psig	1 fat. 2 inj.	1 1/4" cast iron
5/29/82	Levelland, TX	Uncapped 1/2" house pipe	-----	2 fat. 10 inj.	1/2" steel
10/7/82	Anchorage, AK	Drill punctured service line	50 psig	*None	5/8" plastic
10/29/82	Burke, VA	Improper procedure	18 psig	1 fat.	3/4" plastic
11/15/82	Conrad, OK	Homeowner uncoupled service line	20 psig	1 inj.	1" steel
12/24/82	Council Bluffs, IA	Excessive stress fractured pipe	34 psig	2 fat. 8 inj.	1" plastic
4/6/83	Oklahoma City, OK	Vehicle hit gas meter	36 psig	*None	1 1/4" steel
7/83	Detroit, MI	Backhoe fractured threaded pipe	-----	10 inj.	3/4" steel

10/23/83	Princeton, IL	Coupling Pullout	55 psig	5 inj.	1 1/4" steel
12/9/83	Minneapolis, MN	Coupling Pullout	10 psig	1 fat. 3 inj.	1 1/8" plastic
12/28/83	Leeds, AL	Vehicle hit gas meter	285 psig	1 fat.	1" steel
12/29/83	Cape Girardeau, MO	Excessive stress fractured pipe	44 psig	2 fat.	1" steel
8/27/84	Glendale, AZ	Pipe cut with shovel	40 psig	1 fat.	5/8" plastic
2/4/86	Crystal Springs, MS	Coupling Pullout	28 psig	8 fat. 1 inj.	
9/15/86	Bellevue, NE	Coupling Pullout	45 psig	2 fat. 2 inj.	1" steel
10/16/86	Wausau, WI	Coupling Pullout	-----	1 fat. 1 inj.	1/2" plastic
6/22/87	Potomac, MD	Excavation fractured pipe	20 psig	2 inj.	3/4" steel
8/19/87	Staten Island, NY	Coupling Pullout	35 psig	1 fat.	3/4" steel
11/12/87	Kalkaska, MI	Pipe punctured by probe bar	54 psig	*None	7/8" plastic
1/13/88	Iron River, MI	Coupling Pullout	57 psig	20 inj.	1/2" cooper
3/28/88	West Salem, IL	Coupling Pullout	42 psig	1 fat. 3 inj.	3/4" plastic
11/6/88	Albuquerque, NM	Coupling Pullout	34 psig	1 fat. 4 inj.	steel
11/19/88	Smithtown, NY	Excavation fractured pipe	50 psig	1 fat. 11 inj.	3/4" steel

11/25/88	Kansas City, MO	Excessive stress fractured pipe	28 psig	1 fat. 5 inj.	1 1/4" steel
2/10/89	Oak Grove, MO	Excessive stress fractured pipe	14 psig	2 fat.	1 1/4" steel
2/19/91	Lititz, PA	Excavation fractured 2 services	50 psig	*None	1/2" copper 3/4" steel
6/5/91	Tulsa, OK	Regulator ruptured	40 psig	*None	1 1/4" steel
12/28/91	Santa Rosa, CA	Excavation separated service pipe from coupling	50 psig	2 fat.	1/2" plastic
1/92	Rochester, MI	Excavation separated service line	40 psig	1 fat.	1/2" copper
1/21/93	Montezuma, IN				
6/9/93	Wall, NJ	Excavation fractured pipe elbow inside bldg. foundation		1 fat.	3/4" steel
6/16/93	Gaithersburg, MD	Fire melted plastic service riser	20 psig	2 inj	2" plastic

* Accident resulted in substantial property damage.

EXCESS FLOW VALVES RULEMAKING

Mr. PRICE. The justifications indicate that a negotiated rulemaking, proposed by RSPA, on excess flow valves was not acceptable by industry. Does the Safety Board know why the industry opposed this proposal and does the Safety Board agree with the industry?

[The information follows:]

The National Transportation Safety Board had two representatives at the meeting with RSPA when the pipeline industry decided that a negotiated rulemaking on excess flow valves was not acceptable to the industry. Based on the OPS description of the negotiated regulation process, the staff believes that the industry thought the negotiated rulemaking process would take too long, was too bureaucratic involving too much red tape and legal requirements, had to go before a peer group, and was too complicated. In addition, after going through this process that might take a year or two, there was no assurance that RSPA would accept or act upon the negotiated regulations in that it was not binding.

The Safety Board staff proposed at the meeting that the groups work together on a consensus agreement, and this was agreed upon, completed and submitted to RSPA by December 20, 1993. RSPA has now indicated that they plan no further action prior to September 1994.

EXCESS FLOW VALVES

Mr. PRICE. What is the Safety Board's opinion on the alternative, consensus rule that has been developed regarding excess flow valves?

[The information follows:]

On November 9, 1993, Chairman Vogt wrote to Mr, Michael Baly, III, President of the AGA, that the Safety Board supported the consensus rule as follows:

"As you are aware, Safety Board staff have expended considerable time and effort in an attempt to develop regulatory language that would be submitted to the Research and Special Programs Administration for requirements on using excess flow valves (EFVs). The Board understands that the gas industry, EFV manufacturers, and state pipeline safety and emergency response representatives have now developed a position that represents a consensus among the affected parties.

The Safety Board believes that the proposed rule language will enhance public safety by ensuring the installation of nearly one million EFVs annually, a goal long sought by this agency.

Should the parties go forward with the proposed language, and should the RSPA accept that language as the basis for its final rule, the Safety Board will welcome an opportunity to comment favorably on the concepts contained in the draft proposed language, consistent with our staff discussions with the parties.

Let me acknowledge, once again, the considerable effort devoted to this regulatory draft. It represents a significant step forward in pipeline safety."

Mr. Baly (AGA) responded to the Safety Board on November 19, 1993 and asked us to clarify our position. We responded:

"Your letter of November 19, 1993, asks the National Transportation Safety Board to clarify its position on two issues in the Safety Board letter that is to accompany the proposal on excess flow valves (EFVs), which the consensus group is submitting to the Research and Special Programs Administration.

Concerning the first issue, which requires that utilities install EFVs on all new and renewed lines, the consensus group in developing the proposed rules on using EFVs considered the appropriateness of installing EFVs only on single-family, high-pressure residential service lines. The Safety Board believes that RSPA should not require that gas utilities offer EFVs on service lines other than those identified in the consensus proposal unless further analyses indicate that EFVs can be used safely and effectively in other applications and unless the performance conditions for their use in alternate applications have been verified.

Secondly, the Safety Board has recognized inaccuracies in the RSPA benefit/cost study, including improper use of leak repair data. We agree with the consensus group that RSPA should support the American Gas Association and EFV manufacturers in their cooperative effort to collect EFV performance data for future evaluations.

The Safety Board believes that the regulatory proposal drafted by the consensus group represents a significant effort toward improving pipeline safety. We urge the consensus group to forward its proposal to RSPA as soon as possible to assist the agency in its rulemaking effort."

NORTHERN STATES POWER PIPELINE ACCIDENT

Mr. PRICE. Please provide an update on your investigation of the July 22, 1993, Northern States Power gas explosion in St. Paul, Minnesota.

[The information follows:]

In January 1994, the laboratory testing of the pipe was completed. The testing was delayed due to a decision by Northern States Power not to use Battelle Laboratories. The National Transportation Safety Board then sought bids for the work, and due to the wide disparities in the bids, decided to accomplish the examination in our laboratory, using experts from the industry as parties to the investigation. Washington Gas Light allowed us to use their facilities to conduct pressure tests, which we were unable to conduct in our lab. The laboratory tests determined that "the break (at the elbow) appeared to be produced by a single overstress of a ductile material." We plan to issue a report on this accident during the summer of 1994.

OFFICE OF SURFACE TRANSPORTATION STAFFING

Mr. PRICE. You are requesting \$9.543 million and 87 FTEs for the Office of Surface Transportation Safety, a reduction of 4 FTEs from the fiscal year 1994 level. In what areas will the staff reductions be made, and to what extent will your proposed reduction in staffing affect surface accident investigations?

[The information follows:]

The proposed reduction of 4 FTEs will be achieved through attrition, so we do not know exactly which positions will be affected. However, we do expect that most of the positions will come from our investigative and technical positions, since these constitute the majority of employees in this area. Although we are committed to investigating all mandated accidents, we will see delays in issuing accident reports, a lessened ability to send our employees to training, more employees being "on call" more often and for longer periods of time, and a lessened ability to followup on safety recommendations.

SURFACE TRANSPORTATION REPORTS

Mr. PRICE. The justifications indicate that 10 major accident investigations and 245 field investigations will be issued in fiscal year 1994. How many such reports have been issued to date for each surface transportation mode?

[The information follows:]

The number of reports issued, by mode, in the Office of Surface Transportation Safety since October, 1, 1993, follow:

	Major	Field
Highway	2	16
Marine	3	2
Pipeline	0	3
Railroad	1	24

SURFACE TRANSPORTATION RECOMMENDATIONS

Mr. PRICE. Please provide the three highest priority safety recommendations that you have made to each surface transportation modal administration that remain in open status, including the nature of the recommendation and the date it was first made.

[The information follows:]

Federal Highway Administration:

1.

Recommendation Number:	H-90-22
Date Issued:	April 4, 1990
Status:	Open--Unacceptable

The NTSB recommends that the FHWA: Establish a demonstration project(s) to deter the use of alcohol and other drugs by drivers of medium and heavy trucks that includes alcohol and other drug testing at special roadside sobriety checkpoints, truck inspection lanes, and truck weigh stations.

2.

Recommendation Number:	H-90-30
Date Issued:	April 4, 1990
Status:	Open--Unacceptable

The NTSB recommends that the FHWA: Revise 49 CFR Parts 391 and 395 to establish driver hours of service violations, logbook irregularities, or the presence of multiple logbooks as a reasonable cause requiring a drug test of the driver. Amend the regulations and provide notice to drivers of these revised regulations.

3.

Recommendation Number:	H-90-28
Date Issued:	April 4, 1990
Status:	Open--Unacceptable

The NTSB recommends that the FHWA: Require automated/tamper-proof on-board recording devices such as tachographs or computerized logs to identify commercial truck drivers who exceed hours of service regulations.

National Highway Traffic Safety Administration:

1.

Recommendation Number:	H-89-4
Date Issued:	June 5, 1989
Status:	Open--Acceptable

The NTSB recommends that the NHTSA: Incorporate in Federal Motor Vehicle Safety Standard 302 the recommendations of the National Institute of Standards and Technology concerning the new material acceptance criteria to reduce the rate of fire spread in all buses.

2.

Recommendation Number:	H-89-6
Date Issued:	June 5, 1989
Status:	Open--Acceptable

The NTSB recommends that the NHTSA: Revise Federal Motor Vehicle Safety Standard 301 to provide additional protection for school buses in severe crash situations based on an evaluation of the merits of relocating fuel tanks, providing additional structure to protect fuel system components, and frangible valves in critical locations.

3.

Recommendation Number:	H-92-54
Date Issued:	June 25, 1992
Status:	Open--Acceptable

The NTSB recommends that the NHTSA: Require through a performance standard the use of antilock braking systems on all newly manufactured vehicles with airbrake systems.

Federal Railroad Administration:

1.

Recommendation Number:	R-87-16
Date Issued:	May 19, 1987
Status:	Open--Acceptable

The NTSB recommends that the FRA: Promulgate Federal standards to require that the installation and operation of a train control system on mainline tracks which will provide for positive separation of all trains.

2.

Recommendation Number:	R-91-25
Date Issued:	September 16, 1991
Status:	Open--Acceptable

The NTSB recommends that the FRA: In conjunction with the Association of American Railroads and the Railway Progress Institute, expand the effort now being made to develop & install advanced train control systems for the purpose of positive train separation.

3.

Recommendation Number:	R-89-80
Date Issued:	February 12, 1989
Status:	Open--Acceptable

The NTSB recommends that the DOT: Evaluate present safety standards for tank cars transporting hazardous materials by using safety analysis methods to identify the unacceptable levels of risk and the degree of risk from the release of a hazardous material, and then modify existing regulations to achieve an acceptable level of safety for each product/tank car combination.

(Recommendation issued to DOT -- being implemented by the FRA and RSPA jointly.)

Federal Transit Administration:

1.

Recommendation Number:	R-91-33
Date Issued:	August 6, 1991
Status:	Open--Acceptable

The NTSB recommends that the FTA: Document and evaluate the effectiveness of existing State oversight activities of rail rapid transit safety and develop guidelines for use by State and local governments that address the critical element of an effective oversight program.

2.

Recommendation Number:	R-91-34
Date Issued:	August 6, 1991
Status:	Open--Acceptable

The NTSB recommends that the FTA: Monitor safety oversight programs implemented by the State and local governments to determine that the elements of an effective program are in place, that adequate financial resources are available, and that the mechanism through which the oversight is being accomplished is appropriate given the nature of the particular transit system.

3.

Recommendation Number:	R-91-35
Date Issued:	August 6, 1991
Status:	Open--Acceptable

The NTSB recommends that the FTA: Use your funding authority to ensure independent and effective safety oversight for FTA assisted systems.

Research and Special Programs Administration:

1.

Recommendation Number:	P-90-12
Date Issued:	April 20, 1990
Status:	Open--Acceptable

The NTSB recommends that the RSPA: Require the installation of excess flow valves on new and renewed single-family, residential high-pressure service lines which have operating conditions compatible with the rated performance parameters of at least one model of commercially available excess flow valve.

2.

Recommendation Number:	P-93-9
Date Issued:	December 15, 1993
Status:	Open--Await Response

The NTSB recommends that the RSPA: Develop safety requirements for storage of highly volatile liquids and natural gas in underground facilities, including a requirement that all pipeline operators perform safety analyses of new and existing underground geologic storage systems to identify potential failures. Determine the likelihood that each failure will occur, and asses the feasibility of reducing the risk. Require that operators incorporate all feasible improvements.

3.

Recommendation Number:	R-89-80
Date Issued:	February 12, 1989
Status:	Open--Acceptable

The NTSB recommends that the DOT: Evaluate present safety standards for tank cars transporting hazardous materials by using safety analysis methods to identify the unacceptable levels of risk and the degree of risk from the release of a hazardous material, and then modify existing regulations to achieve an acceptable level of safety for each product/tank car combination.

(Recommendation issued to DOT -- being implemented by the FRA and RSPA jointly.)

United States Coast Guard:

1.

Recommendation Number:	M-85-68
Date Issued:	August 12, 1985
Status:	Open--Acceptable

The NTSB recommends that the USCG: Seek legislative authority to require the licensing of captains of commercial fishing vessels, including a requirement that they demonstrate minimum qualification in vessel safety including rules of the road, vessel stability, firefighting, watertight integrity, and the use of lifesaving equipment.

2.

Recommendation Number:	M-86-11
Date Issued:	February 6, 1986
Status:	Open--Acceptable

The NTSB recommends that the USCG: Seek legislative authority to require that stability tests be conducted and that complete stability information be provided to the captains of commercial fishing vessels.

3.

Recommendation Number:	M-92-25
Date Issued:	May 21, 1992
Status:	Open--Acceptable

The NTSB recommends that the USCG: Seek legislation that bases the requirement for load lines for fishing, fish tender, and fish processing vessels on the hazards and risks involved rather than on such unrelated factors as the fish processing methods.

SURFACE TRANSPORTATION RULEMAKING

Mr. PRICE. Please provide a listing of the surface rulemaking comments filed by the Safety Board similar to the listing that were made in 1993.

[The information follows:]

Summary of Responses to Proposed Rulemaking

SURFACE

INTERMODAL

Docket No. 48513
57 FR 59382 (12/15/92)

Limitation on Alcohol Use
By Transportation Workers

(4/14/93) Commented that the current random testing rate should be set at the lowest rate that will provide deterrence and that any change in the rate should be based on credible, peer-reviewed research in the transportation industry or in comparable workplace settings. Supported the proposal to use breath as the primary specimen and breath testing as the primary method for all categories of employer alcohol testing. Commented that the proposed rules are very complex and may be difficult for transportation industries and their workers to understand. Suggested that the alcohol testing policy be consistent among all modes of transportation with uniformity in critical areas such as blood alcohol concentration (BAC), abstinence prior to duty, sanctions, and postaccident abstinence. Implementation and enforcement should be tailored to the specific mode of transportation.

HIGHWAY

MC-92-10
58 FR 4638 (1/15/93)

Mandatory Minimum Training Requirements
for Operators of Longer Combination Vehicles

(3/17/93) Supported the proposal, which addresses NTSB Safety Recommendation H-86-9, and noted that the administration of the program needed to implement this rulemaking should be set up for future expansion to include the training and testing of all commercial motor vehicle drivers.

Docket No. HM-183C, Notice No. 93-7
58 FR 12316 (3/3/93)

Cargo Tanks; Miscellaneous Requirements

(6/11/93) Supported the proposal, but commented (1) that remote controls for internal shut-off valves should be required by a specific date for all MC 331 and MC 338 cargo tanks used for the transportation of any hazardous material and (2) that while the proposal addressed problems associated with void spaces created by closed-section ring stiffeners, the proposal did not address the configuration of other fixtures, such as upper couplers, suspension subframes, and trailer support mountings, that could create similar problems.

Docket No. 74-09, Notice 29
58 FR 19792 (4/16/93)

Federal Motor Vehicle Safety Standard 213,
Child Restraint Systems

(6/11/93) Supported the proposal to warn drivers/parents about the danger of placing an infant in a rear-facing child safety seat in the front seats of vehicles with passenger-side air bags. Also commented that the Safety Board remains concerned about the incompatibility between certain child safety seats and certain vehicle seat locations.

Exemption Application 11014-N
58 FR 29250 (5/19/93)

Office of Hazardous Materials Safety;
Applications for Exemptions

(6/16/93) Commented that before granting an exemption to Hercules, Inc., for transporting organic peroxides in DOT specification 57 portable tanks, the RSPA should evaluate the pressure relief systems installed on the portable tanks and require that pressure relief systems be sufficient to prevent overpressure rupture of tanks from rapid decomposition reactions of organic peroxides.

Docket No. MC-93-12
58 FR 33874 (6/21/93)

Training for All Entry-Level Drivers
of Commercial Motor Vehicles (CMVs)

(9/13/93) Supported the proposal and recommended that the commercial driver license manual include more in-depth instructions on driving in fog, rain, and snow, and the types of hazards that a driver might encounter in work zones. Also commented that formal training should be a prerequisite for licensure of all heavy vehicle drivers and that the testing requirements should be included in 49 CFR Part 391.

Docket HM-200
58 FR 36920 (7/9/93)

Hazardous Materials in Intrastate Commerce

(10/13/93) Supported the proposal to require that all interstate and intrastate shippers and carriers of hazardous materials by motor vehicle comply with the Federal hazardous materials regulations, which already apply to transportation by rail car, aircraft, and vessel. Also commented that identification of packaging failures in intrastate commerce, as well as interstate commerce, will help the DOT to better evaluate the adequacy of hazardous materials packaging requirements.

MARINE

CGD92-045
57 FR 57410 (11/9/92)

Recreational Boating Safety Equipment
Requirements

(2/1/93) Supported the proposal to change a number of Federal requirements and exemptions for carriage of personal flotation devices on recreational vessels, which would result in States and territories being permitted to enact boating laws that are more stringent than the Federal requirements.

CGD88-079a
57 FR 48670 (10/27/92)

Commercial Fishing Industry Vessel Regulations

(2/24/93) Supported the proposal concerning the stability of fishing vessels less than 79 feet in length, but noted five specific deficiencies in Sections 28.505, 28.520, and 28.565 of the regulations and asked that revisions and clarifications be made.

PIPELINE

PS-126, Notice 1
57 FR 54745 (11/20/92)

Passage of Instrumented Internal Inspection
Devices

(2/1/93) Supported the proposal concerning in-line internal inspection equipment (discussed in NTSB Safety Recommendations P-87-6 and -7), but asked the Office of Pipeline Safety to revise the proposal so that facilities for entering and removing in-line internal inspection equipment are required on all pipelines capable of being traversed by such equipment.

PS-117, Notice 3
58 FR 12213 (3/3/93)

Transportation of a Hazardous Liquid
in Pipelines Operating at 20 Percent or Less
of Specified Minimum Yield Strength

(4/28/93) Supported the proposal to regulate all pipelines used to transport highly volatile liquids (HVLs). Also supported regulating any pipeline that transports liquid, regardless of the operating stress level, across populated areas or navigable waterways.

PS-118, Notice 2
58 FR 21524 (4/21/93)

Excess Flow Valve Installation
on Service Lines

(7/6/93) Commented that the Safety Board is pleased that RSPA now recognizes the public safety improvements offered by excess flow valves and urged RSPA to expeditiously implement a final rule on their use. Also commented on specific issues relating to (1) local emergency agency crew use; (2) limits on application of the EFV requirements; (3) testing of EFVs; (4) EFV operation; (5) EFV exemption due to gas system contaminants; (6) disallowing EFVs equipped with a bypass, and (7) EFV design, installation, and performance standards.

RESEARCH AND ENGINEERING STAFFING

Mr. PRICE. How will the proposed reduction of 2 FTEs in the administration's fiscal year 1995 budget request for the Office of Research and Engineering be absorbed and what impact will this reduction have on your ability to conduct thorough and timely accident investigations?

[The information follows:]

The proposed reduction of 2 FTEs will be achieved through attrition, so we do not know exactly which positions will be affected. However, we do expect that most of the positions will come from our investigative and technical positions, since these constitute the majority of employees in this area. Although we are committed to investigating all mandated accidents, we will see delays in issuing accident reports, a lessened ability to send our employees to training, more employees being "on call" more often and for longer periods of time, and a lessened ability to followup on safety recommendations. In addition, the timeliness of our FDR readouts and materials analyses will suffer and our involvement in other phases of accident investigation will be impacted.

RESEARCH AND ENGINEERING RECOMMENDATIONS

Mr. PRICE. What were the most significant accomplishments or recommendations made by this office during the past year?

[The information follows:]

Some of the major accomplishments of Research and Engineering in the past year include:

Special investigation on safety issued related to wake vortex encounters during visual approach to landing, with numerous safety recommendations relating to aircraft separation;

Safety study of recreational boating safety, with recommendations relating to boating while intoxicated and use of personal flotation devices;

Safety study of flight crew errors in Part 121 air carrier accidents, with recommendations for improved training and improved checklist procedures;

Significant progress on safety study of fatigue in heavy truck accidents;

Metallurgical support to the investigation of the Colonial pipeline failure in Reston, Virginia;

Metallurgical and aircraft performance analysis support to the investigation of the Zwingle, Iowa crash of an MU-2 carrying South Dakota Governor Mickelson;

Improvements to aviation accident data system;

Modernization of Board's document achieving system, including conversion from microfiche to optical imaging technology.

RESEARCH AND ENGINEERING WORKLOAD

Mr. PRICE. Please provide some specific workload data for this office, such as safety studies conducted, statistical reports issued, major accident investigations assisted, et cetera.

[The information follows:]

The following represents a brief summary of the activity of the Office of Research of Engineering in fiscal year 1993 and so far in fiscal year 1994:

	Fiscal year 1993	Fiscal year 1994
Hazardous materials investigations	2	1
Safety studies/stat. reviews:		
Completed	4	5
In progress	4	5
Cockpit voice recorders	53	5
Flight data recorders	54	22
RR event recorders	5	5
Engineering performance studies	146	49
Materials lab. analyses	169	34

	Fiscal year 1993	Fiscal year 1994
Aviation data retrieval requests processed	2,450	609
Public inquiry information requests processed	7,161	3,479

ADMINISTRATIVE LAW JUDGES

Mr. PRICE. What is the justification for the proposed reduction of one FTE in the Office of Administrative Law Judges for fiscal year 1995? How will the proposed reduction affect the work of this office?

[The information follows:]

This cut is part of the across-the-board reduction of 15 FTE positions necessary to offset uncontrollable and unfunded cost increases in fiscal year 1995. Assuming no change in the number of incoming cases, the loss of this FTE will cause the backlog of appeal cases to increase by approximately 15 to 20 percent by the end of fiscal year 1995.

ADMINISTRATIVE LAW JUDGES STAFFING

Mr. PRICE. For fiscal year 1994, Congress approved two new positions—an attorney and clerk—to handle new workload relating to the adjudication of civil penalties assessed by the FAA against pilots and flight attendants. Have these positions been filled?

[The information follows:]

Thanks to your support for this year, the Safety Board has been able to enhance its appeals program over last fiscal year, despite sustaining an overall reduction of 15 FTEs. We were able to increase the hours of our part-time attorneys and devote additional clerical support to this program. These additional resources dedicated to the appeals program have put us in a good position to handle the expected influx of civil penalty cases.

A much lower than expected number of incoming civil penalty appeals cases has also helped in our efforts to reduce the backlog of our certificate and license appeals over the past year. This time last year we anticipated receiving approximately 60 civil penalty cases during fiscal year 1994. We now expect to receive much less, closing approximately 10 cases this year. Should the activity pick up, our current staff configuration should be able to handle the increased caseload without adding significantly to the backlog.

CIVIL PENALTY APPEALS

Mr. PRICE. What caseload for civil penalty appeals do you estimate for fiscal years 1994 and 1995?

[The information follows:]

	<i>Civil penalty appeals</i>
FY 1994 projected	13
FY 1995 projected	15

EMERGENCY APPEALS

Mr. PRICE. The OMB justifications indicate that an “increase in emergency appeals has caused a backlog of nonemergency appeal actions at the Board.” Where do you stand in processing backlogged appeals?

[The information follows:]

	<i>Backlog cases “non-emergency”</i>
FY 1993 (actual)	213
FY 1994 (estimate)	218
FY 1995 (estimate)	263

ADMINISTRATIVE LAW JUDGES WORKLOAD

Mr. PRICE. Please insert in the record workload data for fiscal years 1993 and 1994 and projected for fiscal year 1995 for emergency and nonemergency appeals filed with the Safety Board.

[The information follows:]

	Emergency appeals	Non-emergency appeals
1993	184	460
1994	200	445
1995	220	425

DISPOSITION OF APPEALS

Mr. PRICE. Please provide tables similar to those on pages 281-282 of last year's hearing record showing the disposition of appeals cases.

[The information follows:]

DISPOSITION OF CASES APPEALED TO THE FULL BOARD
(Ruling on Judge's Decision)

<u>Cases</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994 1/</u>
Appealed	203	176	251	197	214	186	174	60
Affirmed	87	42	50	62	57	109	71	44
Dismissed	70	47	94	85	80	61	56	27
Modified	17	20	15	13	23	26	7	11
Remanded	3	2	2	7	8	5	3	2
Reversed	6	11	11	7	8	32	7	10

1/ October 1, 1993 through February 28, 1994 (Actual)

DISPOSITION OF THE FEDERAL AVIATION ADMINISTRATION'S ORDERS BY THE SAFETY
BOARD ADMINISTRATIVE JUDGES

<u>Fiscal Year</u>	<u>Af- firmed</u>	<u>Modi- fied</u>	<u>Re- versed</u>
1987	45	31	32
1988	145	99	36
1989	184	149	76
1990	184	131	54
1991	149	88	54
1992	157	67	36
1993	119	56	41
1994 1/	43	18	14

1/ October 1, 1993 through February 28, 1994 (Actual)

OFFICE OF ADMINISTRATION STAFFING

Mr. PRICE. You are requesting \$1.830 million and 24 FTEs for the Office of Administration, a reduction of one FTE from the fiscal year 1994 level. In what area will the staff reduction be made? [The information follows:]

The proposed reduction of 1 FTE will be achieved through attrition, so we do not know exactly which area will be affected.

SAFETY BOARD EFFICIENCY

Mr. PRICE. What efforts have been made in the past year to improve the efficiency with which the Safety Board operates? [The information follows:]

During the past year the Safety Board has implemented a significant number of management improvements to increase the efficiency and effectiveness of its operations.

The first step the Board took to further improve the efficiency and effectiveness of our operations was to streamline the Safety Board organization so that managers are more accountable for the functions and have all the resources under their control to complete their end products.

A second step was to further decentralize the decision-making responsibilities, including budget authority, from top management to the divisions and regional offices.

A third step we took was to enhance the development of mission statements, and goals and objectives for each organization at the Board. The objectives include specific measures of quality, quantity, and timeliness of all Board workload products, such as safety recommendations, accident investigation reports and safety studies. Periodic meetings are held to assess progress in accomplishing these goals and objectives. In addition, the goals and objectives are updated annually to assure that we are continually improving our effectiveness and efficiency.

The Safety Board also has used technology and other management improvements to obtain the greatest productivity from our limited staff and avoid staff increases. The Board has invested heavily in automation. Almost every employee at the Board has a computer on their desk, and many employees use laptop computers when travelling or on accident investigations. We have installed a new technology local area network to connect all of our computers and enable the transfer of information between all employees including the regional office staffs. Our most recent technological improvement has been the installation of optical imaging equipment to allow our investigative staffs to develop their reports, which include pictures and graphics, without the transfer of paper. Additionally, we also share technology with the agencies in the Department of Transportation with which we primarily interface: Federal Aviation Administration, Federal Railroad Administration, National Highway Traffic Safety Administration, and United States Coast Guard.

The Safety Board has been in the forefront of efforts to make government more responsive, effective and efficient in the past and we will continue to seek out innovative approaches in the future.

NTSB ORGANIZATIONAL CHANGES

Mr. PRICE. Please describe any organizational changes you have made in the past year and indicate the rationale for the change. [The information follows:]

Below is a copy of a September 1, 1993, letter to the Committee concerning the consolidation of the Budget and Financial Policy Office under the Board's Policy and Direction program area. No accident investigation-related functions were affected.



National Transportation Safety Board

Washington, D.C. 20594

September 1, 1993

Office of the Chairman
 Honorable Bob Carr
 Chairman, Subcommittee on Transportation
 and Related Agencies
 Committee on Appropriations
 House of Representatives
 Washington, D.C. 20515

Dear Chairman Carr:

In accordance with the Committee's request in the Fiscal Year 1994 House Report that it be advised of any deviations from the staff year allocations or deviations by more than 5 percent from the funding allocations, the following information is provided:

The Board's fiscal year 1995 budget request reflects the results of an internal transfer of the budget, Financial policy, and procurement functions between two Safety Board organizations, the net result of which was to increase the staff year allocations for Policy and Direction from 45 to 51 full-time equivalent (FTE) positions and to reduce the staff year allocations for the Office of Administration from 28 to 22. A corresponding change in dollars also is reflected.

This transfer, facilitated the consolidation of Budget and Financial Policy under the Board's Policy and Direction program area. No accident investigation-related functions were affected.

Enclosed is a table showing the difference between the FY 94 dollars and FTE shown in the Committee's Report and those reflected in the Board's FY 95 request to the Office of Management and Budget.

Sincerely,

 A handwritten signature in dark ink, appearing to read "Carl W. Vogt".

Carl W. Vogt
 Chairman

Enclosure

cc: Honorable Frank R. Wolf
 Ranking Republican Member

FY 94 ESTIMATE IN THE FY 95 OMB REQUEST
VS.
FY94 HOUSE COMMITTEE REPORT

	COMMITTEE		OMB REQUEST		%CHA	
	=====		=====		=====	
	<u>FTE</u>	<u>DOLLARS</u>	<u>FTE</u>	<u>DOLLARS</u>	<u>FTE</u>	<u>DOLLARS</u>
POLICY & DIRECTION	45	\$5,282,000	51	\$5,793,000	13.3%	9.7%
AVIATION SAFETY	127	\$13,286,000	127	\$12,971,000	0.0%	-2.4%
SURFACE TRANSPORTATION	90	\$9,433,000	90	\$9,525,000	0.0%	1.0%
RESEARCH & ENGINEERING	47	\$4,815,000	47	\$5,044,000	0.0%	4.8%
ADMINISTRATION	28	\$2,581,000	22	\$2,147,000	-21.4%	-16.8%
ADMINISTRATIVE LAW JUDGES	13	\$1,708,000	13	\$1,625,000	0.0%	-4.9%
TOTAL	350	\$37,105,000	350	\$37,105,000	0.0%	0.0%

* ACCOUNT-WIDE COMMITTEE DOLLAR ADJUSTMENTS (\$132,000) ARE PRO-RATED TO EACH PROGRAM AREA.

TRANSIT SUBSIDY PROGRAM

Mr. PRICE. What are the amounts budgeted for the transit subsidy program in fiscal years 1994 and 1995?

[The information follows:]

In both 1994 and 1995 there is \$36,140 budgeted for the transit subsidy program. The subsidy amount per employee is \$21.

STAFF TRAINING

Mr. PRICE. What amounts are budgeted for staff training in fiscal years 1994 and 1995?

[The information follows:]

Amounts budgeted for training in fiscal years 1994 and 1995 are \$780,000 and \$769,000 respectively.

TRAINING COURSES

Mr. PRICE. Please provide for the record a list of the training courses attended by your investigative staff during 1993, including attendees' position, course and time.

[The information follows:]

OFFICE OF AVIATION SAFETY
1993 TRAINING ATTENDED BY TECHNICAL STAFF

<u>Position</u>	<u>Training Course</u>	<u>Hours</u>
Director	(1) Organizational Theory and Behavior	
Aviation	(1) Administrative Political Functions	
Safety	(1) Crisis Response Training	40
	(1) Rehabilitate/Remove Problem Employee	8
Deputy		
Director	(1) Pilot Proficiency Training	32
Aviation Safety		
Trans. Safety		
Specialist	(1) Interpersonal Skills for Supervisors	40
Chief Regional		
Ops. General		
Aviation Div.	(1) Pilot Proficiency Training	32
	(1) Interpersonal Skills for Supervisors	40
	(1) Technical Writing	16
Chief, Major		
Investigation		
Div.	(1) Interpersonal Skills for Supervisors	40
	(1) Technical Person in Leadership Role	7
Deputth Chief		
Major Invest.	(1) Leadership and Management Training	40
	(1) Common Sense Supervision	32
	(1) Interpersonal Skills for Supervisors	40
	(1) Management Problems of Tech Person	7
Chief		
Survival Factors	(1) Equal Opportunity Training	8
Div.	(1) Interpersonal Skills for Supervisors	40
	(1) Mgmt. Technical Person in Leadership	8
Chief Human		
Performance Div.	(1) Common Sense Supervision	40
	(1) Interpersonal Skills for Supervisors	40
	(1) Rehabilitate/Remove Problem Employee	8
Chief Aviation	(1) Interpersonal Skills for Supervisors	40
Engineering	(1) Composite Materials	40
Division		
Deputy Chief		
Aviation	(1) leadership and Management Training	40
Engineering		
Aerospace		
Engineer	(1) Instrument Ground School	24

	(2) Leadership and Management Training	36
	(1) Fire Protection/Mishap Course	40
	(1) Post Blast Investigators Course	40
	(1) Composite Materials Course	40
	(1) Basic Crash Survival Investigation	80
	(1) Reinventing the Government	16
	(2) Engineering, Materials, Maintenance	24
	(1) ATR-42 Line Maint. Familiarization	80
	(1) Boeing Familiarization Course	40
	(1) Airplane Preliminary Design	40
	(1) Aircarrier Maint. and Engineering	40
	(1) Technical Writing/Ethics	24
	(1) Proficiency Flight Training	40
Chief Operational Factors Division	(1) Interpersonal Skills for Supervisors	40
	(1) Pilot Proficiency Training	32
	(1) Aviation Psychology	21
Deputy Chief Operational Factors	(1) Interpersonal Skills for Supervisors	40
Meteorologist	(2) Aviation Weather Systems	40
Regional Director	(1) Windows Training	4
	(2) Dbase IV	8
	(1) PC Expo	24
	(1) WordPerfect for Windows	6
	(1) Adult CPR	4
	(1) Overcoming Adversity	4
	(1) Leadership/Management Training	40
	(1) Pilot Proficiency Training	40
	(5) Interpersonal Skills Training	40
	(1) Advanced WordPerfect	4
	(2) Imaging Training	24
	(1) Regional Office Admin Training	24
	(1) Rehabilitate/Remove Problem Emp.	8
	(1) Windows 3.1 Support	16
	(1) Technical Writing/Ethics	24
Field Chief	(1) WordPerfect for Windows	8
	(1) Intro to MS DOS	8
	(3) Interpersonal Skills Training	40
	(1) Project Management Negotiations	24
	(1) Conflict Management	16
	(2) Pilot Proficiency Training	40
	(1) Advanced Aircraft Accident Course	40
	(1) Overcoming Adversity	4
Supervisory Air Safety Investigator	(2) Bloodborne Pathogen Standards	3
	(1) Composite Materials Course	32
	(2) Pilot Proficiency Training	40
	(1) Accident Prevention/Investigation	80
	(2) Aircraft Deicing	8
	(5) Interpersonal Skills for Supervisors	40

	(1) Technical Writing/Ethics	24
	(1) How to Manage Projects, Deadlines	8
Air Safety		
Investigator	(4) WordPerfect for Windows	6
	(1) Intro to MS DOS	8
	(2) Dbase IV Intermediate Training	8
	(12) Pilot Proficiency Training	40
	(11) Supervisory Development Program	100
	(1) Air Carrier Indoctrination	104
	(1) Air Carrier Familiarization	40
	(2) Saab Aircraft Indoctrination	40
	(1) Boeing Systems Familiarization	40
	(3) Adult CPR	4
	(1) FAA Rotorcraft Accident Invest.	64
	(2) Air Transport Engineering Maint.	19
	(3) 35 mm Camera Operations	10
	(2) Basic Accident Investigation	96
	(2) Equal Opportunity Training	8
	(1) USC Professional Development	88
	(1) Corel Draw user conference	24
	(1) Critical writing skills workshop	24
	(3) Leadership and Management workshop	40
	(2) Reinventing the Government	8
	(2) Interpersonal skills for supervisor	40
	(1) Workforce writing course	20
	(3) Presentation techniques	7
	(2) Testing of infant restraints	24
	(3) Communications training	8
	(1) Aviation Emergency Response School	16
	(3) Aircraft Deicing	8
	(1) Paperless office project training	24
	(2) Aviation Maintenance conference	16
	(1) Powerful Communications Skills	8
	(1) Speed Writing	36
	(1) Composite Materials Course	24
	(1) Fire and Explosion Investigations	40
	(1) Advanced Powerplant training	240
	(1) Aviation Maintenance Technician	250
	(7) Advanced Aircraft Accident Invest.	40
	(1) Imaging Training	16
	(1) Certified Flight Instructor Refresh	24
	(1) Reciprocating Engine Service School	32
	(1) Computer System Admin Training	16
	(5) Technical Writing/Ethics	24
	(1) Travel Management, Travel Vouchers	16
	(1) Technical Person in Leadership Role	8
	(1) Rotorcraft Safety Accident Invest.	64

OFFICE OF RESEARCH & ENGINEERING
1993 Training Attended by Technical Staff

<u>Position</u>	<u>Training Course</u>	<u>Hours</u>
Aerospace Engineer (DFDR)	ARC/Info. Using Grid	40
Aerospace Engineer (DFDR)	Intro. to ARC/Info. Training	40
Aerospace Engineer (Perf)	DFDR Sundstrand	24
Aerospace Engineer (Perf)	Principles of Flight Test	40
Aerospace Engineer (Perf)	Private Pilot Ground School	17
Chief, Analysis & Data Div.	PC/Windows Training	4
Chief, Analysis & Data Div.	Interpersonal Skills Trng. for Sup.	40
Chief, Analysis & Data Div.	Manager's Role as Coach	6
Chief, Haz. Mat. Div.	HazMat Risk Analysis	32
Chief, Haz. Mat. Div.	Interpersonal Skills Trng. for Sup.	40
Chief, Materials Lab Div.	Interpersonal Skills Trng. for Sup.	40
Chief, Safety Studies Div.	Interpersonal Skills Trng. for Sup.	40
Chief, Safety Studies Div.	Truck Driver Fatigue Study Training	8
Chief, Vehicle Perf. Div.	Mgmt. Prog. of Tech. Person in Leader. Role	8
Computer Prog. Analyst	VAX Rdb/VMS Design	40
Computer Systems Analyst	Learning Tree Windows Programming	32
Computer Systems Analyst	Microsoft Windows	15
Computer Systems Analyst	C + programming	32
Deputy Director	Comtemp. Executive Develop.	68
Electronics Engr. (CVR)	Speech Recog.: Fund. Conc./Algorithm	16
Electronics Engr. (CVR)	Custom WAVES Training	16
Engineering Technician	ARC/Info. Grid Training	40
Engineering Technician	Local; Intro. to ARC/Info.	40
Haz. Mat. Accident Invest.	HazMat Distribution Risk Mgmt.	16
Haz. Mat. Accident Invest.	Management skills development	40
Materials Engineer	Composite failure analysis course	16
Materials Engineer	Technical Writing	18
Materials Engineer	Fundamentals of Nondestructive Test.	40
Metallurgist	Fatigue Fracture Mech./Damage Tol.	40
NRS (Chemistry)	Society of Forensic Tox.	40
NRS (Chemistry)	Interagency Thermocomposite Wkshp	24
NRS Aerospace Eng. (Perf.)	Principles of Flight Test	40
NRS Electronics Engr. (CVR)	Speech Recog.: Fund. Conc./Algorithm	16
NRS Electronics Engr. (CVR)	Custom WAVES Training	16
Phy. Science Tech. (Met.)	Training at manufacturer (Boeing)	40
Sr. Computer Spec.	VMS System & Network Mgmt. I/II/III	120
Sr. Computer Spec.	Pathworks Internals	40
Sr. Computer Spec.	Implementing Pathworks	40
TSS	Dialog Info. Service Trng.	8
TSS	Aviation accident investigation	96
TSS (2)	Presenting Data and Information	16
TSS	SPSS training	24
TSS	Internet Training	3
TSS	Truck Driver Fatigue Study Training	8
TSS (Failure Analysis)	Composite failure analysis course	16

OFFICE OF SURFACE TRANSPORTATION SAFETY
1993 Training Attended by Technical Staff

<u>Position</u>	<u>Training Course</u>	<u>Hours</u>
Director, Surface Transportation	Teambuilding	24
	Role Clarification	8
	Phase I Leadership & Mgmt	36
Deputy Director	Teambuilding	24
	Role Clarification	8
Executive Assistant	Events & Causal Factor/MORT	80
Acc. Invest. (Trainee)	At Scene Traffic Acc. Invest.	80
	Basic Concepts of Data Processing	
Chief, Human Performance Div.	Suprvy Interpersonal Skills	40
	Teambuilding	24
	Role Clarification	8
	DOS Pathworks	4
	Windows	4
	ICAO Human Factors Workshop	8
	Airbag Training	4
	Transportation Research Board	4
	Writing Course	16
	ISTEA Briefing	4
	Presentation Skills Course	8
	Ethics Training	4
	Vessel Resource Mgmt	36
Human Performance Invests.	(2) Bridge Resource Mgmt	
	(1) Human Factors Engineering	
	(1) Briefing Techniques	24
	(1) Tap Root Invest. & Cause Analysis	16
	(2) Ship Operations	
	(1) Locomotive Engineering	
	(3) Phase I Leadership & Mgmt	40
	(2) ISTEA Briefing	4
Chief, Survival Factors Div.	Teambuilding	24
	Suprvy Interpersonal Skills	40
	Role Clarification	8
	Tech. Writing Workshop	24
	Deal with Difficult People	8
Survival Factors Investigator	(2) Phase I Leadership & Mgmt	36
	(2) DOS Windows and Pathwork	16
	(1) Hwy Accident Reconstruction	24
	(2) Lower Extremity Vehicular Crashes	16
	(7) WordPerfect for Windows 5.2	56

	(1) Injury Scaling; Uses & Techniques	16
	(1) Advanced WordPerfect for Windows	16
	(1) Paradox Training	16
	(2) Events & Causal Factor/MORT	80
	(1) Advanced Paradox Training	16
	(1) Inland Oil Spill Control	40
	(1) National Search & Rescue	120
	(1) Advanced Accident Investigation	40
	(1) Investigative Report Writing	24
	(5) Emergency Response Procedures	15
Chief, Railroad Division	Phase I Leadership & Mgmt	36
	Suprvy Interpersonal Skills	40
	Teambuilding	24
	Strategic Planning	32
	Report Writing	8
	Test Run X-2000	8
	Basic Signal Operations	8
	Role Clarification	8
Chief, RR Majors Branch	EEO Training	8
	Basic Signal Operations	8
	Advanced Accident Invest.	16
	Advanced WordPerfect	8
	Coaching & Teambuilding for Mgrs	8
	Suprvy Interpersonal Skills	40
	Events & Causal Factor/MORT	80
	DOT/FRA Workshop on Track Safety	32
	AAR Vehicle Track Systems Program	16
	Amtrak/Bombardier Equipmt Bldg Inspect.	16
	Strategic Planning	32
RR Regional Directors	(1) Mgmt Skills for 1st Line Supervisors	24
	(1) DOT/FRA Advanced NPR Workshop	16
	(1) Natl Ops Lifesaver & Public Awareness	16
	(1) Basic First Aid and CPR	4
	(3) Suprvy Interpersonal Skills	40
	(3) Strategic Planning	40
RR Accident Investigators	(6) Strategic Planning	40
	(1) Basic First Aid and CPR	4
	(2) Basic Signal Control	30
	(1) Power Brake Law NPRM	48
	(1) Phase I Leadership & Mgmt	36
	(1) RR Tracks-Design, Anal & Maint	40
	(1) Burlington RR School	8
	(2) Test Run X-2000	8
	(5) WordPerfect 5.2	8
	(3) Report Writing	8

	(1) Travlin Presentation Skills	8	
	(1) Safety Recs Norfolk So. RR	8	
	(1) Party System Brotherhood of Loco. Eng.	8	
	(1) Comtemp. Issues in Large Organ.		
	(1) Organization Roles		
	(1) Consulting & Communication		
Quality Assur. Specialist	Test Run X-2000	8	
	Phase I Leadership & Mgmt	36	
	TNAT	8	
	Strategic Planning	32	
	Accident Investigation	40	
	RR Interlocking Signals Class	16	
	FRA Instructions on Data & Maps	16	
	WordPerfect	32	
	Bayview RR Yard	8	
RR Recommendation Specialist (TSS)	BART - Test Run Blue Line	24	
	Phase I Leadership & Mgmt	36	
Chief, Highway Division	Teambuilding	24	
	Contemporary Exec. Dev.		120
	Role Clarification	8	
	Suprvy Interpersonal Skills	40	
Chief, HWY Majors Branch	Effective Exec. Speaking	24	
	Suprvy Interpersonal Skills	40	
	Effective Exec. Speaking	24	
	Phase I Leadership & Mgmt	36	
Chief, HWY Tech. Services Branch	Suprvy Interpersonal Skills	40	
	Phase I Leadership & Mgmt	36	
HWY Regional Directors	() Adv. Comm. Veh. Acc. Invest. & Reconst.	40	
	(2) Suprvy Interpersonal Skills	40	
	(2) Phase II Leadership & Mgmt	36	
	(2) Events & Causal Factor/MORT	40	
HWY Accident Investigator	(4) Adv. Comm. Veh. Acc. Invest. & Reconst.	40	
	(1) Events & Causal Factor/MORT	80	
	(6) Report Writing for Supervisors	24	
	(4) Quattro Pro	16	
	(5) Project Management	24	
	(11) Technical Writing	20	
	(1) Basic Program of Kinesic Interview	40	
	(4) Heavy Vehicle Accident Investigation	40	
	(23) Intro to Windows 3.1	8	
	(1) Developing Leadership Skills	24	
	(18) Grade Crossing Collision Investigation	40	
	(2) Advanced Interview Training	40	
	(20) Teambuilding	40	
TSS (Heavy Vehicle)	Adv. Comm. Veh. Acc. Invest. & Reconst.	40	

	Intro to DBase IV	
	Intermediate DBase IV	
TSS (HWY/Pipeline)	Strategies for Dev. Effect. Presentations	24
	Intro to WordPerfect for Windows	8
Chief, Marine Division		
Chief, Major Marine Invest. Br.	Partners for Effectiveness	36
	Supervising Employee Performance	24
	Advanced Acc. Invest. School	32
	Ethics	4
	WordPerfect 5.0	8
	Report Writing	24
	The Art of Interviewing	4
	Writing Tutorials	4
Chief, Marine Technical Branch	Supervising Employee Performance	24
	Report Writing for Managers	24
	Partners for Effectiveness	24
	Phase II Leadership & Mgmt	36
National Resource Spec. (Marine)	Phase II Leadership & Mgmt	36
Marine Acc. Investigator	(1) Chemical Tanker Safety	40
	(2) WordPerfect for Windows 5.2	4
	() Ethics	4
	(1) Events & Causal Factor/MORT	40
	(1) Phase I Leadership & Mgmt	36
	(1) Phase II Leadership & Mgmt	36
	(2) Bridge Resource Mgmt	40
Acting Chief, Pipeline Division	(1) Partners for Effectiveness	36
	(1) Supervising Employee Performance	24
	(1) Intro to Supervision for Small Agency	16
	(1) Ethics Training	3
	(1) Writing for Managers	16
	(1) Advanced Surface Accident Invest.	32
	(1) Advanced WordPerfect for Windows	6
	(1) Advanced Windows	12
National Resource Specialist	(1) IGT Emergency Preparedness	24
	(1) Computer Pathworks, DOS & Windows	3
	(1) Ethics Training	3
	(1) EEO Training	2
Petroleum Engineer	(2) Advanced Accident Investigation	32
	(1) Windows	8
	(2) WordPerfect	8
	(1) Typing	80
	(2) Computer Pathworks, DOS & Windows	3
	(2) Ethics Training	3
	(1) Pressure Reg. & Overpressure Protect.	36
	(2) Communications Workshop	8

DRUG TESTING PROGRAM

Mr. PRICE. What have been the results of the Safety Board's drug testing program?

[The information follows:]

On March 8, 1991, the Safety Board's drug testing plan was forwarded to the Department of Health and Human Services (HHS). The plan has been reviewed by the Office of Personnel Management, and the Departments of Justice and HHS, and HHS recommended revisions to the Board's plan on March 25, 1994. We expect a revised plan to be forwarded to HHS and certified in the near future. The program will be implemented in FY 1995, assuming certification.

COST OF LIVING/LOCALITY PAY

Mr. PRICE. NTSB is requesting \$26.848 million for personnel compensation and benefits in fiscal year 1995. What assumptions were made regarding cost of living and locality pay?

[The information follows:]

The requested funds will cover the fiscal year 1995 effect of the fiscal year 1994 locality pay raise, and the fiscal year combined general and locality pay increases of 1.6 percent.

ATTRITION RATE

Mr. PRICE. Last year, the Safety Board indicated that its attrition rate in fiscal year 1992 was 12 percent. What was the rate of attrition in 1993?

[The information follows:]

Last year the National Transportation Safety Board indicated that the attrition rate for 1991 was 12 percent, and that the attrition rate for 1992 was 9 percent. The Safety Board's attrition rate in 1993 was 8 percent.

OTHER SERVICES

Mr. PRICE. Please provide a breakdown of your fiscal year 1995 request of \$1.575 million for "Other Services".

[The information follows:]

Accident investigation/hearing services	\$86,000
Training tuition/fees	423,000
Working capital fund	24,000
Equipment/building maintenance	197,000
Building security	159,000
Court reporting	191,000
Miscellaneous	495,000
Total	1,575,000

EQUIPMENT

Mr. PRICE. Also please provide a breakdown of the Safety Board's request for \$345,000 for "Equipment" in fiscal year 1995.

[The information follows:]

Object class description:	[Dollars in thousands]	Fiscal year 1995
		request
Office equipment		\$65
Investigative equipment		106
Laboratory equipment		174
Total equipment		345

COMMUNICATIONS AND UTILITIES

Mr. PRICE. Please provide a breakdown of your fiscal year 1995 request for "communications and utilities" by categories that include local telephone, long distance telephone, mail, copier rental, courier service, et cetera.

[The information follows:]

[Dollars in thousands]		
Accident investigation		5
Office space		5,115
Parking space		200
Telephones/communications		640
Mail		199
Equipment rental		1
Total		6,160

SLOT ALLOCATION SYSTEM

Mr. DURBIN. The FAA has undertaken a review of slot system at high density airports such as Chicago O'Hare. Some have suggested that slot restrictions are no longer necessary due to improvements in the air traffic control system.

Does NTSB believe the slot allocation system is still necessary to maintain an adequate level of safety at these airports? What other options could be considered?

[The information follows:]

Regardless of the system in use, airport capacity is determined primarily by runway configuration and weather conditions. Federal Aviation Administration traffic management staff monitor arrival and departure flows through the use of the aircraft situation display (ASD). The slot system is designed to allow for maximum utilization, of designated operators, at high density airports during established hours. The Safety Board believes this is an acceptable system.

HIGH SPEED RAIL

Mr. DURBIN. What role is the NTSB playing in the development of standards for high speed rail in the U.S.?

[The information follows:]

The National Transportation Safety Board does not have a direct role in the development of standards for high speed rail other than the role of an observer. We are certainly interested in the developments that are taking place. We attend High Speed Rail Association conferences and other industry functions related to the development of high speed rail whenever possible as part of the Railroad Division's advocacy program.

Mr. DURBIN. What does NTSB believe the major safety problems are with the development of high speed rail?

[The information follows:]

The National Transportation Safety Board believes there are two major safety problems with the development of high speed rail; grade crossings, and positive train separation. The large number of at grade railroad/highway (and road) crossings on identified high speed rail lines poses an unacceptably high risk to high speed rail operations. Normally this is a problem even with current conventional rail lines. There is about one grade crossing for every mile of mainline railroad track in this country. There are over 600 deaths and 2,000 injuries at highway-rail crossings annually. Casualties at grade crossings would certainly multiply if current grade crossing conditions did not change in a high speed rail corridor where train speeds were raised from Amtrak's current maximum of 79 mph to 150-200 mph. The solutions are expensive and not popular; reduce the number of crossings and install active warning devices and gates, and/or totally separate the crossings with over or under passes. Only then will there be some assurance of preventing a catastrophic collision.

Given the limited sight distances, reaction times, railroad traffic density, and other factors involved in high speed rail operations, it is imperative that a system insure train separation in the event the engineer fails to stop or otherwise cannot do so. High speed rail systems not only imply greater convenience and time savings, but also greater forces and risk, the ingredients of possible disaster. In order to minimize the higher risk associated with high speed rail operations by reducing the possibility of human failure, the Board feels a positive train separation system should be a mandatory part of any high speed rail operation, particularly if it involves use by conventional freight trains.

AVIATION STATISTICS

Mr. DURBIN. In 1991, the accident rate per 100,000 aircraft hours was 0.231 for large scheduled air carriers (Part 121) compared to 1.048 for commuter air carriers (Part 135). The fatal accident rate was 0.036 compared to 0.381.

The accident rate per 100,000 departures was 0.347 for large schedule air carriers compared to 0.815 for commuter air carriers in 1991.

What accounts for the difference in accident rates between Part 121 and commuter air carriers?

[The information follows:]

There are significant differences between the operation of commuters and major air carriers that would probably make the achievement of absolute equivalency, in terms of accident statistics, unrealistic. For example, while most of the commuter operations are conducted in modern turbopropeller aircraft that have achieved high reliability there are operators in the commuter industry who fly reciprocating engine powered airplanes that will never achieve the reliability of the modern jet transports. Moreover, commuter pilots are generally less experienced. In fact, the commuters are often a stepping stone for pilots of the major carriers. Other factors that can affect risk are the lower altitude operation of commuter aircraft, which often means greater exposure to adverse weather, and the less sophisticated navigational aids available in the cockpit and at destination airports. Many of these airports may not be equipped with distance measuring equipment or precision instrument landing systems.

When considering the totality of all factors, however, the steadily improving safety record of the commuter industry throughout the 1980s is encouraging and noteworthy.

Mr. DURBIN. What has happened to these rates since 1991?
[The information follows:]

The accident rates in terms of total accidents and fatal accidents per 100,000 aircraft hours has improved since 1991 for both large scheduled air carriers (Part 121) and commuter air carriers (Part 135). In 1992 the total accident rates per 100,000 hours were 0.135 and 1.009 for Part 121 and Part 135 carriers respectively. The fatal accident rates were 0.034 and 0.321. In 1993, the total accident rates were 0.193 and 0.675 the Part 121 and Part 135 carriers respectively, and the fatal accident rates were .008 and .169.

Because many of the accidents occur during takeoff and landing and because of the shorter legs for the commuters the statistics, when cited in terms of flight hours, tend to favor the larger carriers. When cited in terms of 100,000 departures, the average total accident rate for large carriers during the three year period 1991-1993 was 0.276 per 100,000 departures while the rate for commuters was 0.699, about 2.5 times that for the large carriers.

COMMUTER RECOMMENDATIONS

Mr. DURBIN. What recommendations has NTSB made to reduce these differences? What is the status of these recommendations?
[The information follows:]

As noted in an answer to a previous question, it is probably not realistic to believe that the smaller commuter operator will achieve absolute parity with the large carriers because of inherent differences in their operations. However, the Safety Board has made several safety recommendations to reduce the differences. These have addressed pilot training, the use of simulators and crew resource management training; the installation of ground proximity warning systems; a scheduling policy that prevents the pairing of two inexperienced pilots; changes to minimum experience requirements for new captains; and priorities for Federal Aviation Administration (FAA) oversight activities.

The Safety Board is generally satisfied that FAA has taken, or has initiated, actions to address the safety recommendations. Many are being held in an open-acceptable response category pending final FAA rulemaking as previously discussed.

BARGE SAFETY

Mr. DURBIN. Recent accidents have raised questions regarding the safety of the inland towing industry. Is NTSB reviewing safety requirements for barges which operate on the Upper Mississippi River System?

[The information follows:]

The National Transportation Safety Board is looking at the inland river system in general as it pertains to improving the safety of navigation. The Safety Board will be reviewing towboat operator qualifications, Coast Guard licensing requirements, towboat navigation equipment requirements for uninspected vessels, bridge marking, bridge pier and span protection. In the past, we have looked at barge operations on the Upper Mississippi River and made recommendations to the Coast Guard, NOAA, and the USACE.

TOWING INDUSTRY SAFETY

Mr. DURBIN. What is the status of NTSB's review of the inland towing industry?

[The information follows:]

The National Transportation Safety Board is not at this time reviewing the inland towing industry, per se. We are, however, reviewing towboat operator qualifications, Coast Guard licensing requirements, towboat navigation equipment requirements for uninspected vessels, bridge marking, bridge pier and span protection, as it pertains to inland towing operations, as a result of the Mobile AMTRAK accident and the New Orleans Judge Seeber Bridge accident.

Mr. DURBIN. Based on its current assessment, what appear to be the most serious safety problems in this area?

[The information follows:]

The most serious safety problems appear to be the lack of radar qualification certification for inland vessel operators, lack of required navigation equipment, the lack of bridge marking, and the lack of standards for bridge pier and span protection.

CLOVER FIELD, TEXAS, ACCIDENT

Mr. DELAY. In early January, a mid-air collision took place in my district between two general aviation aircraft near the Clover Field Airport in Pearland, Texas. The aircraft were only about a quarter of a mile from the landing strip when the accident occurred.

Evidently, the two aircraft were attempting to land at the same time when the fatal crash took place.

Have several probing questions regarding this incident. Are there any known problems with traffic patterns in the Clover Field area that could have contributed to the cause of this accident?

[The information follows:]

Operations at airports without an air traffic control tower are conducted on a "see-and-be-seen" basis. That is, the operator of each respective airplane maintains a responsibility to see and avoid his traffic. The pilot also is responsible for announcing his intentions prior to executing each maneuver. While this particular midair collision is currently under investigation, preliminary evidence suggests that the pilot of one airplane involved in the accident, failed to clearly verbalize his intentions and failed to see and avoid the other airplane.

Mr. DELAY. Are there any known impediments on the ground such as a lack of proper equipment and/or the condition of such equipment that could have contributed to the accident?

[The information follows:]

Preliminary evidence does not suggest this.

MIDAIR COLLISIONS

Mr. DELAY. Are mid air collisions, such as the one I have mentioned, common to general aviation and general aviation airports?

[The information follows:]

Operations conducted at airports which do not have a control tower rely solely on the "see-and-avoid" concept of aircraft separation and on pilot adherence to general operating and flight rules. At any time when good operating practices or basic flight rules are not followed, the risk of a collision is increased. Over a recent ten-year period, there has been on average about 20 midair collisions per year between two general aviation aircraft.

BLIND SPOT AVIATION ACCIDENTS

Mr. DELAY. Is there or has there been research conducted by the NTSB regarding blind spot accidents such as the one that occurred at Clover Field?

[The information follows:]

We are unsure what you are referring to by the term, "blind spot accident". However, as a regular part of their investigation of midair collision accidents, Safety Board investigators attempt to determine for each aircraft involved the location of the other aircraft in each pilot's field of view. Special attention is directed to determining if a windshield post or other structural members might have obstructed the pilot's view of the other aircraft at any time that the two aircraft were within detection range. Although the Clover Field collision is still under investigation, preliminary information has not established that such an impediment was involved in this case.

In a different context, the term "blind spot" is used to describe a small area in the retina of the human eyeball where the optic nerve leaves the eyeball. This spot is not sensitive to light stimulation and, thus, results in a corresponding blind spot

in the human visual field. However, research and accident investigation experience have not shown this phenomenon to be a significant factor in degrading pilot's visual scanning performance to avoid collisions.

CONTINENTAL AIRLINES ACCIDENT

Mr. DELAY. Last evening, a Continental Airlines Jet skidded off the runway at New York's La Guardia Airport after aborting a takeoff. News accounts state that the jetliner was only a few feet away from going into Flushing Bay.

Are there any preliminary accounts on why the takeoff was aborted?

[The information follows:]

The investigation of the Continental Airlines MD80 accident at LaGuardia, New York, has revealed that the pilots noted low airspeed indications that led them to reject the takeoff. The flight data recorder revealed that the airspeed indication for the first officer (he was making the takeoff) was erroneous, never going about 50 knots. Preliminary calculations suggest that the airplane reached about 140 knots before the takeoff was rejected. There were no engine or structural malfunctions. Although the conditions were conducive to airframe icing, there is no evidence that the pilots attempted to takeoff from the runway, so such factors are not considered relevant in the accident.

LAGUARDIA AIRPORT RUNWAY OVERRUN

Mr. DELAY. This is not the first airliner to either come close or actually go into Flushing Bay after an aborted takeoff at La Guardia. A few years back, Washington's National Airport landfill filled the end of the main runway and since the landfill, at least two jets have needed the extra ground to come to a stop.

Is there sufficient room at La Guardia to handle aborted takeoff situations?

[The information follows:]

In order to comply with Federal Aviation Administration regulations that apply to air carrier operations, airline pilots and dispatchers must assure that the runway length available for takeoff is sufficient to permit the airplane to either continue to accelerate and complete a takeoff or reject the takeoff and come to a complete stop in the event of an engine failure at the most critical speed.

While the Safety Board has had concerns about the safety margins that are inherent in the airplane certification data used for required runway length analyses, we noted in the USAir accident involving a Boeing 737 in 1989, a USAir accident involving a Fokker 28 in 1992, and in this latest accident involving the Continental MD 80, that the available runway at LaGuardia significantly exceeded the runway length required for the weight of these airplanes and existing conditions.

Mr. DELAY. Is there a need for additional landfill on the Flushing Bay end of the runway to safely accommodate aborted landings? Is this something that has been looked into?

[The information follows:]

The Federal Aviation Administration (FAA) requires that new runways have 1,000 foot safety areas at each runway end, however, older airports constructed before this requirement was in place, are unable to construct 1000 foot safety areas due to physical constraints. LaGuardia is one such airport. The FAA has approved a 31 million dollar AIP grant for construction of a partial 460 foot safety area at the threshold of runway 31.

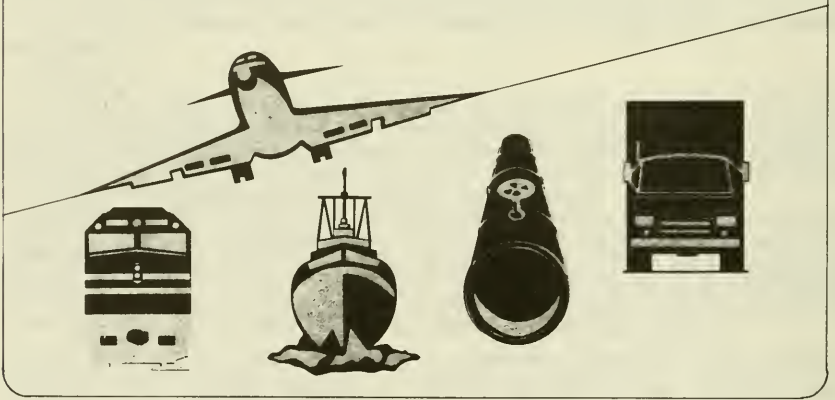
The State of New York's Department of Environmental Conservation issued a Notice of Determination on Non-Significant (Negative Declaration) on March 9, 1994, which would allow construction of the safety areas to proceed, as soon as the New York City Area Urban Land Use Review Process is completed. The Port Authority of New York and New Jersey estimated that the safety area could be completed by the end of calendar year 1994, at the earliest. The Port Authority also is considering

the 460 foot safety areas for possible construction of a foam arrestor bed, pending FAA completion of testing and specifications for arrestor beds.

[The justifications follow:]

**NATIONAL
TRANSPORTATION
SAFETY
BOARD**

**FISCAL YEAR
1995 BUDGET**



CONTENTS

I. SCHEDULES

A. Mission and Authority	1
B. Appropriation Language	2
C. Salaries and Expenses: Program & Financing	3
D. Salaries and Expenses: Object Classification	4
E. Emergency Fund: Program & Financing	5
F. Summary by Type of Expense	6
G. Analysis of Changes FY 1994 to 1995	7
-- Impact of Staffing Reductions	
H. Summary of Resource Requirements and Workload Measures	13
I. Allocation of Resources by Program, Mode, Function and Location	14

II. FUTURE PLANS

A. Most Wanted Safety Recommendation Program	
1. Aviation	
-- Airport Runway Incursions	17
-- Requirement for Mode C Intruder Conflict Alert in Terminal Areas	18
-- Aircraft Brake Certification	18
-- Aging Aircraft	20
2. Railroad	
-- Positive Train Separation	20
3. Highway	
-- Heavy Commercial Truck Safety	21
-- School Bus Safety	22
-- Passage of Administrative Revocation of Driver's License Laws in All States	23
-- Mandatory Use of Seatbelts	24

4. Marine	
-- Passage of State Laws to Combat Boating While Intoxicated	25
-- Foreign Cruise Ship Operation out of U.S. Ports	25
-- Fishing Vessel Safety	26
5. Pipeline	
-- Excess Flow Valves	28
6. Hazardous Materials	
-- Transportation of Hazardous Materials by Rail	29
7. Intermodal	
-- Hours-of-Work/Human Fatigue	30
-- Uniform Industry-Wide Policy on Collection, Processing and Testing for the Detection of Alcohol and Drugs	31
B. Other Significant Safety Issues	
1. Aviation	
-- Marvel-Schebler Model HA-6 Carburetors	33
-- Piper PA-28R and PA-44 Nose Landing Gear	34
-- Cessna 172RG Main Landing Gear Pivot Assembly	34
-- Piper Cheyenne In-Flight Loss of Control	35
-- FAA Flight Inspection Airplanes	36
-- Instrument Landing Signal (ILS) Signal Deviations	36
-- Uncommanded Rudder Inputs during AUTOLAND Landings	36
-- Piper PA-31 Engine Cows	37
-- Boeing 747 Autopilot System	37
-- Thermal Protection Standards for Flight Recorders	38
-- Piper PA-25 In-Flight Wing Separation	39
-- Boeing 747 Cargo Door Wiring Bundle Chafing	39
-- Saab 340A Propeller Gearbox Shaft Failure	40
-- Piper PA-46 Series Malibu/Mirage Airplanes	41
-- McDonnell-Douglas MD-80	41
-- Aircraft Maintenance	42
-- Aircraft Magnetos	42
-- Flight Attendant Emergency Procedure Training Programs	43
-- Rejected Takeoffs (RTOs)	44
-- Infant and Small Child Restraints	45
-- Alcohol and Drugs in Fatal General Aviation Accidents	47
-- Hartzell Propeller Hub, Model HC-B4TN-5DL	47
-- DC-8 Bogie Beam Failure	49
-- Cessna Spin-on Adapters	49
-- Lockheed L-1011 In-Flight Flap Vane Separation	50
-- Boeing 747 Engine Pylon to Wing Attachment Fuse Pins	50

--	Orbital Sciences Corporation Pegasus Rocket	52
--	Beech Bonanza Empennage Flutter	52
--	Traffic Alert and Collision Avoidance System (TCAS)	
	Training for Flightcrews and Air Traffic Controllers	53
--	Boeing 737 Aileron Cable Failure	53
--	DC-9/MD-80 Control Cable Icing	54
--	MD-11 and DC-10 Tail Strikes	54
2.	Railroad	
* --	Hours-of-Work/Human Fatigue	54
--	Safety Oversight of Rapid Transit Systems	55
--	Locomotive Crashworthiness	56
--	Continuous Welded Rail	57
--	Grade Crossing Safety	58
--	Toxicological Testing	59
--	Railroad Event Recorders	59
--	Locomotive Fuel Tank Integrity	59
3.	Highway	
--	Heavy Truck Wheel Runaway Accidents	60
--	Adequacy of Passive Restraints	60
--	Motor Carrier Oversight	61
--	Intercity Bus Safety	61
--	"Specialty Bus" Safety	62
--	Highway Bridge Vulnerability	62
--	Commercial Drivers License	63
--	North American Free Trade Agreement	63
4.	Marine	
--	Liftboat Safety	63
* --	Crew Manning and Fatigue	64
--	Large Vessel Maneuvering in Harbors and Channels	65
--	Bridge Resource Management	66
--	Tank Ship Safety	67
--	Inland Towing Safety	68
5.	Pipeline	
--	Cast Iron Pipe Replacement	69
--	Safety of Military Base Gas Systems	71
--	Improved Pipeline Isolation Capability	72
--	Improved Monitoring of Liquid Pipelines	72
6.	Hazardous Materials	
--	Transportation of Hazardous Materials by Rail	73
--	Cargo Tank Rollover Protection	75
--	Inspection and Testing of Railroad Tank Cars	76

C. Safety Studies

1. Aviation

-- Flightcrew Involvement in Part 121 Air Carrier Accidents	78
-- Safety of On-Demand Part 135 Air Taxis	79
-- Commuter Airline Pilot Training	80

2. Railroad

* -- Railroad Work/Rest Cycles	80
-- Railroad/Highway Grade Crossing Safety	81

3. Highway

* -- Fatigue in Commercial Vehicle Accidents	81
-- Child Passenger Protection	82

4. Marine

-- Pilotage	83
* -- Fishing Vessel Safety	84

III. SAFETY ACCOMPLISHMENTS

A. Safety Accomplishments Program	85
-----------------------------------	----

B. Aviation

1. Standardization of Flight Recorder Documentation	86
2. Aircraft Carburetors	87
3. Foreign Accident Investigations	87
4. Lycoming Engine Fuel Line Cracking	90
5. Search and Rescue (SAR) Response Following Aviation Mishaps	90
6. Transport Aircraft Structural Icing	90
7. MD-11 Inadvertent Slat Deployments	91
8. Cessna 402C Fuel Tank Inlet Valves	92
9. Boeing 737 Rubber Control Binding	92
10. Embraer EMB-120	93
11. Grob Sailplanes/Motorgliders	94
12. Airframe Icing	94

C. Railroad

1. Improvements in Railroad Safety	95
------------------------------------	----

D. Highway

1. Fire-Apparatus Safety	96
2. School Bus Safety	97
3. Truck Driver Training	97
4. Heavy Vehicle Airbrake Systems	98

5. Work Zone Safety	98
6. Truck Driver Use of SeatBelts	99
E. Marine	
• 1. Passenger Vessel Safety	100
• 2. Fishing Vessel Safety	101
3. Bridge Resource Management	102
4. Vessel Traffic Services	103
F. Pipeline	
1. Improved Employee Training	104
2. The Need for Performance Criteria	105
G. Hazardous Materials	
1. Tank Car Safety	106
2. Cargo Tank Fittings	107
3. Remote Shut-off Valves on Cargo Tanks	108
IV. MAJOR PROGRAM DESCRIPTIONS	
A. Policy and Direction	110
B. Aviation Safety	112
C. Surface Transportation Safety	116
D. Research and Engineering	118
E. Administration	120
F. Administrative Law Judges	122
V. ADDITIONAL DATA	
A. The Role of the Safety Board and Other Organizations in Transportation Safety	123
B. Graph of 1992 Fatalities by Mode	137
C. Accident Selection Criteria	138
D. Organization Chart	142

MISSION AND AUTHORITY

The National Transportation Safety Board is an independent agency charged with determining the probable cause(s) of transportation accidents and promoting transportation safety. The Board investigates accidents, conducts safety studies, evaluates the effectiveness of other government agencies' programs for preventing transportation accidents, and reviews appeals of adverse certificate, and civil penalty actions by the Administrators of agencies of the Department of Transportation involving airman and seaman license.

Most importantly, the Board makes safety recommendations, based on its investigations and studies, to Federal, State and local government agencies and to the transportation industry regarding actions that should be taken to prevent accidents. Safety recommendations are the focal point of the Board's efforts to improve safety in the transportation system.

Although the Board's charter is the Independent Safety Board Act of 1974, its origins can be found in the Air Commerce Act of 1926, in which Congress charged the Commerce Department with investigating the causes of aircraft accidents. Since 1967 the Board has investigated accidents in all modes of transportation including aviation, highway, marine, rail, and pipeline. The Safety Board also investigates accidents involving the transportation of hazardous materials.

The Board has no authority to regulate the transportation industry. Therefore, its effectiveness depends on its reputation for timely and accurate determination of accident causation and for issuing realistic and feasible safety recommendations to satisfy the need for prompt implementation of safety improvements.

Although the missions and authorities of other Federal agencies include fostering and ensuring the safety of the U.S. transportation system, the independent oversight role of the Safety Board is essential in prompting compliance with those agencies' roles both by its thorough and timely investigations and by its recommendations to prevent future accidents. "The Role of the Safety Board and Other Organizations in Transportation Safety", which follows, provides additional information regarding the Safety Board's mission and authority as compared with other organizations.

APPROPRIATION LANGUAGE

Salaries and Expenses

For necessary expenses of the National Transportation Safety Board, including hire of passenger motor vehicles and aircraft; services as authorized by 5 U.S.C. 3109, but at rates for individuals not to exceed the per diem rate equivalent to the rate for a GS-18; uniforms or allowances therefore, as authorized by law (5 U.S.C. 5901-5902), [\$37,105,000] \$37,305,000 of which not to exceed \$1,000 may be used for official reception and representation expenses. (Department of Transportation and Related Agencies Appropriation Act, 1994.)

SALARIES AND EXPENSES
Program and Financing (in thousands of dollars)

Identification Code: 95-0310-0-1-407	1993 Actual	1994 Estimate	1995 Estimate
<u>Program by activities:</u>			
00.01 Policy and Direction	5,634	5,846	5,924
00.02 Aviation Safety	13,113	13,502	13,577
00.03 Surface Transportation Safety	9,247	9,508	9,543
00.04 Research and Engineering	4,830	4,985	5,026
00.05 Administration	1,826	1,815	1,830
00.06 Administrative Law Judges	1,350	1,449	1,405
10.00 Total Obligations	36,000	37,105	37,305
<u>Financing:</u>			
39.00 Budget Authority (Appropriation)	36,000	37,105	37,305
<u>Budget Authority:</u>			
40.00 Appropriation	36,000	37,105	37,305
<u>Relation of Obligations to Outlays:</u>			
71.00 Obligations incurred, net	36,000	37,105	37,305
72.40 Obligated Balance, Start of Year	4,427	3,251	3,711
74.40 Obligated Balance, End of Year	(3,251)	(3,711)	(3,731)
77.00 Adjustments in Expired Accounts	(386)	--	--
90.00 Outlays	36,790	36,645	37,285

SALARIES AND EXPENSES
Object Classification (in thousands of dollars)

Identification Code: 95-0310-0-1-407	1993 Actual	1994 Estimate	1995 Estimate
Personnel Compensation and Benefits:			
11.1 Permanent positions	19,825	21,015	20,949
11.3 Positions other than permanent	555	204	213
11.5 Other personnel compensation	638	663	648
11.8 Special personal services payments	1	2	2
Total personnel compensation	21,019	21,884	21,812
12.1 Personnel benefits: Civilian	4,264	4,788	5,036
Subtotal, Personnel Compensation and Benefits	25,283	26,672	26,848
Other than Personnel Compensation and Benefits:			
21.0 Travel and transportation of persons	1,661	1,690	1,648
22.0 Transportation of things	68	69	66
23.1 Standard level user charges	4,841	4,972	5,116
23.2 Rental payments to others	198	203	200
23.3 Communications, utilities, and miscellaneous charges	804	808	845
24.0 Printing and reproduction	338	340	327
25.0 Other services	1,638	1,646	1,575
26.0 Supplies and materials	287	288	275
31.0 Equipment	823	356	345
42.0 Insurance claims and indemnities	59	61	60
99.9 Total obligations	36,000	37,105	37,305
Personnel Summary:			
Full-time equivalent employment (FTE)	373	358	343
-- Permanent (Full-time)	350	350	335
-- Other than Permanent (Full-time)	23	8	8
FTE of overtime and holiday hours	5	5	5

EMERGENCY FUND
Program and Financing (in thousands of dollars)

Identification Code:	95-0311-0-1-407	1993 Actual	1994 Estimate	1995 Estimate
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Program by Activities:

00.02 Accident Investigation	--	--	--
	----	----	----
10.00 Total Obligations	--	--	--

Financing:

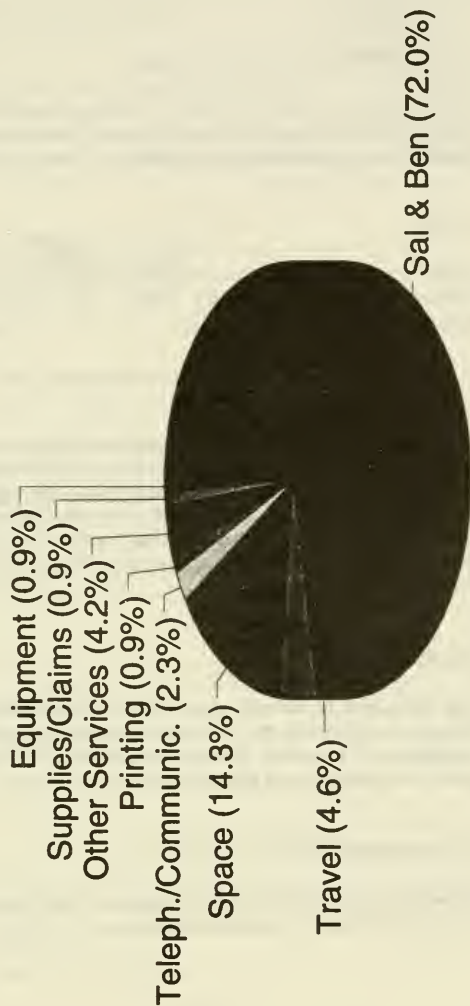
21.40 Unobligated balance available, start of year	-639	-639	-639
24.40 Unobligated balance available, end of year	639	639	639
	----	----	----
39.00 Budget authority	--	--	--

Relation of Obligations to Outlays:

71.00 Obligations Incurred, Net	--	--	--
	----	----	----
90.00 Outlays	--	--	--

FY 95 CONGRESSIONAL BUDGET

Summary by Type of Expense



ANALYSIS OF CHANGES

FY 1994 to 1995

\$ -1,405,000 15 FTE Position Decrease (358-343)

This reduction reflects the effect of funding the Safety Board at only \$200,000 more than the FY 1994 level. The resulting impact on the Board's transportation safety programs follows on pages 9 through 12.

\$ 302,000 Inflation

Based on OMB's latest economic assumptions, an inflation rate of 2.9 percent is anticipated for FY 1995. This factor is applied to all non-personnel costs.

\$ 265,000 Civilian Benefits

Civilian benefits costs are expected to exceed the projected increase related to the pay raise. Higher health benefit premiums, the increase in the number of employees covered by the more expensive Federal Employees Retirement System, and the continued increase in employee participation in the Thrift Savings Plan have been the primary reasons for similar civilian benefit increases experienced during the past few years.

\$ 561,000 Pay Raises

The requested funds will cover the FY 1995 effect of the FY 1994 locality pay raise and the FY 1995 combined general and locality pay increases of 1.6 percent. Should these assumptions change, additional dollar and staffing level adjustments will be needed.

\$ 507,000 Promotions/Within-Grade Increases

Expenses related to career promotions and within-grade increases will cost approximately 2 percent of salaries in FY 1995.

\$ 67,000 Official Mail

A 50 percent increase in official mail (postage) costs is expected as a result of a change in the Postal Service's billing procedure from a sampling method to a per piece (metered) method.

\$ -97,000 Reduction In Administrative Expenses

A 6 percent reduction in administrative expenses is reflected in accordance with OMB Bulletin 93-09 (Executive Order 12837).

\$ 200,000 Total Amount of Changes

Summary of Changes:

\$37,105,000 FY 1994 Appropriation (358 FTE¹)

\$ 200,000 Total Amount of Changes (FY 1994 - FY 1995)

\$37,305,000 FY 1995 Request (343 FTE)

¹ Enacted 350 FTE plus 8 FTE (non-ceiling).

IMPACT OF PROPOSED 15 FTE STAFFING REDUCTION

The National Transportation Safety Board is a small agency whose primary responsibility is the investigation of transportation accidents and other safety problems, in all five modes of transportation. These investigations result in the development of safety recommendations to correct any safety problems uncovered.

The Safety Board has prided itself on accomplishing this very extensive transportation role with a very small dedicated staff. The Board's staff has never exceeded 400 employees, and during the early '80s the staff was reduced to approximately 300 employees. The 300 level disrupted the Safety Board's ability to accomplish its transportation safety responsibilities, and we have been working diligently since 1982 with the Office of Management and Budget (OMB) and the Congress to rebuild our transportation safety programs to the minimum level necessary to meet our statutory mandate.

The FY 1995 funding allowance proposed for the Safety Board will begin to reverse the progress we have achieved over the past decade.

The Safety Board already has reduced its staff from 373 to 358 FTE for FY 1994, and 343 FTE is the level that can be funded with the dollars proposed by OMB for FY 1995. Our accident investigation responsibilities in all modes of transportation require a wide variety of skills. In many instances, we have only one or two people on our staff with the required skills to accomplish a given task. Therefore, should the staff be reduced, we must of necessity eliminate the application of certain skills to our accident investigations, with a concurrent reduction in accident prevention potential and investigative thoroughness. In addition, reductions in staffing at the Safety Board will generate only minimal savings, and would be inconsequential in terms of the 252,000 position reduction projected government-wide.

As a result, the traveling public may experience a reduced level of safety oversight in both aviation and surface modes, as completion of reports are delayed; a possible decrease in the number of safety improvement recommendations to correct identified safety problems; and a lessened ability to ensure implementation of recommended safety improvements.

Our concern does not indicate a lack of support for the Administration's efforts to streamline government. In fact, the Safety Board has been in the forefront of efforts to make government more responsive, effective and efficient in the past and we will continue to seek out innovative approaches in the future which will avert the need for additional resources.

In our core area of responsibility, accident investigation, we have minimized our need for resources by developing procedures to accomplish our responsibilities using the resources of others. The Safety Board investigative staff manages other experts from industry and government in the collection of facts, conditions and circumstances surrounding the accidents we investigate. The participation of these other "parties" greatly multiplies the Board's resources, and without the donated assistance provided by these parties the Board could not accomplish its large volume of work with its current resources. There is also an additional safety benefit from this participation in that it ensures general agreement over the factual findings of the investigation, and allows first-hand access to information so that appropriate corrective actions may be taken immediately by the parties. The leveraging of Federal resources which this Safety Board policy has been accomplishing is precisely the type of innovative management of Federal programs called for in the National Performance Review.

Another means by which the Safety Board multiplies the use of its limited accident investigation resources is by delegating the accidents with lesser accident prevention potential to other government agencies. For example, the Board currently delegates the investigation of aviation accidents involving agricultural, experimental, and home-built aircraft to the Federal Aviation Administration (FAA), while retaining only the determination of the probable cause of these accidents. In the railroad area, the Board only investigates about 40 percent of the railroad accidents, leaving the remainder for investigation by state or other Federal authorities. In the marine area, the Board only independently investigates approximately eight percent of the major marine accidents, requesting the Coast Guard to investigate the others for the Board. In the pipeline mode, the Board requests that state and Federal pipeline authorities investigate approximately 75 percent of all accidents each year. By selecting only those accidents with the most accident prevention potential, while delegating the investigation of other accidents, the Board achieves the maximum safety benefit from its limited resources. However, investigations delegated to agencies that have regulatory authority always run the risk of producing biased findings that fail to identify regulatory inadequacies or insufficient regulatory agency oversight.

By utilizing the resources of others, the Safety Board has been able to maintain a relatively constant level of productivity in the face of reduced employment levels and continually increasing complexity in the accidents we are required to investigate. Technological advances in the aviation industry, for example, have resulted in glass cockpits, fly-by-wire and use of composite materials; advances in the railroad industry have resulted in satellite and ground based advanced train control systems, sophisticated electronic alerting devices, digitized electronic event recorders, and end-of-train telemetry devices; and marine industry technological advances have included satellite electronic navigation and small water plane area twin hulls. These and other advances in technology have contributed to the necessary specialization of our staff and the lack of staffing depth in most specialty areas.

The Safety Board also has used technology and other management improvements to obtain the greatest productivity from our limited staff and avoid staff increases. The Board has invested heavily in automation. Almost every employee at the Board has a computer on their desk, and many employees use laptops when travelling or while on scene at accident sites. We have installed a new technology local area network to connect all of our computers and enable the transfer of information between all employees including the regional office staffs. Our most recent technological improvement has been the installation of optical imaging equipment to allow our investigative staffs to develop their reports, which include pictures and graphics, without the transfer of paper. Additionally, we also share technology with the agencies in the Department of Transportation with which we primarily interface: Federal Aviation Administration, Federal Railroad Administration, National Highway Traffic Safety Administration, and United States Coast Guard .

The Safety Board has also implemented a significant number of management improvements to increase the efficiency and effectiveness of the staff. These initiatives are directly in line with the management practices described in the National Performance Review.

The first step the Board took to improve the efficiency and effectiveness of our operations was to streamline the Safety Board organization so that managers are accountable for their functions and have all the resources under their control to complete their end products.

A second step was to decentralize the decision-making responsibility, including budget authority, from top management to the divisions and regional offices. This change has allowed us to eliminate some support positions and convert them to additional investigative positions.

A third step we took was to have each Office develop a mission statement and goals and objectives for their organization. The objectives include specific measures of quality, quantity, and timeliness of all Board workload products, such as safety recommendations, accident investigation reports and safety studies. Periodic meetings are held to assess progress in accomplishing these goals and objectives. In addition, the goals and objectives are updated annually to assure that we are continually improving our effectiveness and efficiency.

Despite this significant long-term attention to improved efficiency, we welcome the Report of the National Performance Review and the additional incentive of the President's plan to Streamline the Bureaucracy, and we plan to further improve our organization and programs in accordance with those guidelines. The following is a list of the activities that we plan to undertake in the future:

- o Analyze Mission and Functions. The first activity that we will undertake is a detailed review of our mission and functions.
- o Reduce the Ratio of Managers and Supervisors to Other Personnel. The Safety Board is taking a two-pronged approach to addressing this item. First, we will carefully review each supervisory and management position that becomes vacant to determine if it can be eliminated or consolidated with the functions of another position. Second, we will identify creative ways in which to encourage supervisors and managers whose positions might be consolidated or restructured to retire or accept other positions.
- o Restructure the Organization. We are going to re-analyze the whole organizational structure of the Safety Board.
- o Reduce Internal Management Regulations and Administrative Staff. The Safety Board intends to review all of its internal management regulations. We also intend to review staffing levels in the budget, acquisition, accounting, auditing, and personnel functions in conjunction with the reduction in regulations.
- o Increase Use of New Technology. The Safety Board will continue to utilize new technology to increase the productivity of its staff and operations.
- o Enhance Employee Morale. It will be necessary to explore new initiatives to maintain high morale because of the changes and disruptions that will be occurring as a result of further streamlining of Safety Board programs.
- o Improve Customer Service. The Board has had a customer service program in our administrative area for the last two years. We plan to expand the program to all offices.

In conclusion, in many ways the Safety Board has already been operating in accordance with the tenets of the National Performance Review by: addressing real-world tangible problems, allowing industry full participation in our work, delegating activities to the state and local level wherever practical, making recommendations instead of regulations, and disseminating all our reports and findings to as wide a customer base as possible. In addition, we are a small, manageable organization that can react quickly to changes in the transportation environment to meet our customers' needs. As with many small entrepreneurial organizations, we can implement a solution in the time it takes a large department to form a task force, to develop a plan, and to identify the problem.

However, in order to achieve many of the innovative management improvements of the National Performance Review; fulfill our vital transportation safety oversight role; and keep abreast of advanced technologies in the transportation environment and growth in the transportation industry; the Board's staffing depth should be maintained for each of our critical technical and investigative functions.

SUMMARY OF
RESOURCE REQUIREMENTS AND
WORKLOAD MEASURES
FY 1993 - 1995

	FY 1993	FY 1994	FY 1995
<u>Resource Requirements</u>			
Budget Authority (\$000)			
Policy and Direction	5,634	5,846	5,924
Aviation Safety	13,113	13,502	13,577
Surface Transportation Safety	9,247	9,508	9,543
Research & Engineering	4,830	4,985	5,026
Administration	1,826	1,815	1,830
Administrative Law Judges	1,350	1,449	1,405
Total Budget Authority	36,000	37,105	37,305
Outlays (\$000)	36,790	36,645	37,285
Full-time Equivalent (FTE) Employment * (workyears)			
Policy and Direction	52	50	48
Aviation Safety	134	129	124
Surface Transportation Safety	95	91	87
Research & Engineering	52	50	48
Administration	27	25	24
Administrative Law Judges	13	13	12
Total Funded FTE Employment	373	358 ^{1/}	343
OMB Ceiling	373	356	350
<u>Workload Measures:</u>			
Safety Recommendations Issued	299	250	225
Major Accident Investigation Reports	18	16	14
Aviation (Domestic)	7	6	5
Railroad	5	4	3
Highway	2	2	2
Marine	2	2	2
Hazardous Materials/Pipeline	2	2	2
Field and Other Accident			
Investigation Reports	4,675	2,415	2,300
Aviation (Domestic)	4,408 ^{2/}	2,170	2,100
Railroad	88	80	60
Highway	160	150	128
Marine	12	8	5
Hazardous Materials/Pipeline	7	7	7
Foreign Investigations (Aviation)	42	40	32
Public Hearings	1	5	4
Safety Studies and Special Investigations	7	5	4
Certificate and License Appeals (Closed)	765	765	700
Civil Penalty Appeals (Closed)	3	10	8
Opinions and Orders (Closed)	280	280	225

^{1/} Enacted 350 FTE plus 8 FTE (non-ceiling).

^{2/} Reflects the results of a major effort to reduce the backlog of accident reports.

* Note that all FTE numbers now include former non-ceiling employees.

ALLOCATION OF RESOURCES BY PROGRAM,
MODE, FUNCTION, AND LOCATION
FY 1995

<u>Distribution by Program</u>	<u>Prcnt</u>	<u>Staff (FTE)</u>	<u>Cost (\$000)</u>
Policy and Direction	14%	48	5,924
Aviation Safety	36%	124	13,577
Surface Transportation Safety	25%	87	9,543
Research & Engineering	14%	48	5,026
Administration	7%	24	1,830
Administrative Law Judges	3%	12	1,405
TOTAL	100%	343	37,305

Distribution by Transportation Mode

Aviation	65%	226	24,580
Railroad	11%	37	4,024
Highway	13%	45	4,894
Marine	6%	22	2,393
Pipeline	3%	10	1,088
Hazardous Materials	1%	3	326
TOTAL	100%	343	37,305

Distribution by Function

Major Accident Investigations	50%	170	19,136
Field Accident Investigations	32%	110	12,382
Safety Reviews and Studies	4%	15	1,688
Appeals	5%	18	2,269
Administrative Support	9%	30	1,830
TOTAL	100%	343	37,305

Distribution by Location

Headquarters	69%	237	25,776
Field	31%	106	11,529
TOTAL	100%	343	37,305

FUTURE PLANS

The Safety Board's current and long-term priorities are reflected in its "Most Wanted" Safety Recommendation Program, Other Significant Safety Issues, and Safety Studies Sections. Within funding and personnel limitations, the Board proposes to focus its efforts on the following areas to assure the public's confidence in the safety of the Nation's transportation system and to provide the highest potential safety payoff.

MOST WANTED SAFETY RECOMMENDATION PROGRAM

Since the Safety Board began investigating accidents, it has issued more than 9,000 safety recommendations to prevent accidents, save lives, and reduce injuries. While all the recommendations made by the Safety Board will, if implemented, improve safety and help prevent accidents, some of these recommendations have a greater potential to save lives. In order to identify those recommendations with the greatest impact on transportation safety, the Safety Board adopted the "Most Wanted" Safety Recommendation Program. Recommendations selected as part of the program will receive more intensive follow-up activity in order to persuade government agencies and industry to act on them as quickly as possible.

In order to be considered for the "Most Wanted" list, a recommendation must have a national impact on transportation safety, concern a safety issue of high visibility, or be of great interest to the public. Also considered are: previous loss of life and property and the potential for future losses; the extent to which the safety problem the recommendation is aimed at solving exposes the public to risk; and previous action taken by the recipient. Strong regard is given to recommendations that have not been acted upon for an inordinately long period of time.

The safety issues currently highlighted on the Board's "Most Wanted" list are identified below and are described in more detail later in this section.

- o Airport Runway Incursions (pg. 17)
- o Requirements for Mode C Intruder Conflict Alerts in FAA Aviation Terminal Radar Control Areas (Requirements for Mode C Intruder Conflict Alerts in Terminal Areas, pg. 18)
- o Maximum Brake Wear Limits and Performance in Transport Category Aircraft (Aircraft Brake Certification, pg. 18)
- o Aircraft Structural Fatigue Testing to Two Lifetimes (Aging Aircraft, pg. 20)

- o Positive Train Separation (pg. 20)
- o Heavy Commercial Truck Safety (pg. 21)
- o School Bus Safety (pg. 22)
- o Administrative Revocation of Driver's Licenses (Passage of Administrative Revocation of Driver's License Laws in all States, pg. 23)
- o State Mandatory Use of Seatbelts (Mandatory Use of Seatbelts, pg. 24)
- o Boating While Intoxicated (Passage of State Laws to Combat Boating While Intoxicated, pg. 25)
- o Passenger Vessel Safety (Foreign Cruise Ship Operation Out of U.S. Ports, pg. 25)
- o Fishing Vessel Safety (pg. 26)
- o Installation of Pipeline Excess Flow Valves (Excess Flow Valves, pg. 28)
- o Evaluation of Safety Standards for Railroad Tank Cars that Transport Hazardous Materials (Transportation of Hazardous Materials by Rail, pg. 29)
- o Improved Fatigue and Hours-of-Work Research, Education, and Regulations for all Transportation Modes (Hours-of-Work/Human Fatigue, pg. 30)
- o Uniform Industry-Wide Policy on Collection, Processing and Testing for the Detection of Toxicological Specimens of Alcohol and Drugs (Uniform Industry-Wide Policy on Collection, Processing and Testing for the Detection of Alcohol and Drugs, pg. 31)

On July 9, 1991, the Safety Board voted to remove from the original list the issue of identification of aviation pilots with substance abuse problems. This action was taken as a result of the many varied efforts by the FAA to bring about the early and efficient identification of pilots who may have a substance abuse problem.

On September 17, 1991, the Safety Board voted to add the issue of state mandatory seatbelt use laws to the "Most Wanted" list.

On May 27, 1992, the Safety Board voted to remove the Ground Proximity Warning System issue from the original list because the FAA issued a final rule on the subject in March 1992.

On April 27, 1993, the Safety Board voted to remove the Adjustable Upper-Anchorage Points for Automobile Seatbelt Shoulder Harnesses issue from the list because the automobile industry has recognized the value of such a device and is voluntarily including it on most passenger cars, vans and light trucks.

Also, at the April 27 meeting, the Safety Board removed various specific recommendations in the runway incursion, passenger vessel safety and schoolbus safety issue areas; and added an antilock brake recommendation to the heavy commercial truck safety issue area. These will be described in the detailed discussions that follow.

AVIATION

Airport Runway Incursions

The Board's original "Most Wanted" list contained 15 safety recommendations addressing the runway incursion problem. These safety recommendations came from a 1986 safety study on this issue, and major runway incursion accidents occurring at Atlanta's Hartsfield International Airport on January 18, 1990, at the Detroit Metropolitan Airport on December 3, 1990, and at the Los Angeles International Airport on February 1, 1991. On September 22, 1992, the Board classified one of these safety recommendations as "Closed--Acceptable Action" based on the FAA's integration of information on surface operational errors, surface pilot deviation, and vehicle/pedestrian deviations into an automated runway incursion information system.

In 1991, the FAA established a number of Runway Incursion Action Teams that were to inspect airports for compliance with ground control standards. These teams inspected 18 airports in 1991 and 20 in 1992. Additional inspections will be conducted during 1993.

Following a review of action taken by the FAA to address some of the Safety Board's concerns in this area, the Board, on April 27, 1993, voted to remove four additional safety recommendations from its "Most Wanted" list. These recommendations: (1) sought the required reporting of operational errors, pilot deviations, and near collisions on the ground as well as in the air; (2) called for improved standards for the signing and marking of runways and taxiways; (3) urged that Part 139 certificated airports operating at visual ranges of 1,200 feet or less follow ICAO annex 14 standards for surface movement control guidance systems and; (4) called for language in the Airman's Information Manual (AIM) to alert pilots to the need for vigilance in monitoring ATC frequencies for traffic conflict situations.

Of the remaining 10 safety recommendations on the "Most Wanted" list in this issue area, eight are awaiting further action by the FAA; and two are pending the Board's evaluation of the FAA response.

Requirements for Mode C Intruder Conflict Alert in Terminal Areas

Following the midair collision between an Aeronaves de Mexico, DC-9 and a Piper PA-28 above Cerritos, California, on August 31, 1986, the Safety Board recommended that the FAA take expedited action to add visual flight rules (VFR) conflict alert (Mode C Intruder) logic to automated radar terminal system (ARTS) computers as an interim measure to the ultimate implementation of the advance automation system (AAS).

The FAA completed its study of the technical and operational factors involved in adding VFR conflict alert logic software to the ARTS IIIA computers in 1988. Based on the results of that study, the FAA entered negotiations for a contract to perform the needed modifications to all ARTS IIIA sites. In a January 6, 1992, letter to the Board, the FAA Administrator informed the Board that the New York TRACON facility had an operational Mode C system as of July 3, 1991. The FAA plans to complete all sites by the end of fiscal year 1995. The Safety Board will continue to monitor the FAA's progress.

Aircraft Brake Certification

The Safety Board completed a lengthy and complicated investigation of the McDonnell-Douglas DC-10-30/40 brake systems and related accelerate-stop performance requirements in 1990. A special investigation report was issued which contained 12 safety recommendations addressing inadequacies in transport airplane brake certification requirements, rejected takeoff (RTO) safety margin requirements, and DC-10-30/40 brakes.

The investigation resulted from a McDonnell Douglas DC-10-30/40 overrun on May 21, 1988, at Dallas-Fort Worth International Airport. The airplane was damaged beyond economical repair during the attempted RTO. In response to RTO procedures, the airplane decelerated normally for five to six seconds, slowing from 178 knots, the maximum ground speed, to about 130 knots. At that point, the deceleration decayed rapidly resulting in the airplane departing the end of the runway at a ground speed of about 97 knots. Of the 255 occupants, only two members of the flightcrew were seriously injured.

The longitudinal acceleration data recorded on the airplane's digital flight data recorder (DFDR) showed that the airplane's brakes failed during the RTO. If the brakes had not

failed, the airplane could have stopped on the runway. Examination of the airplane's wheel brake system revealed that eight of the 10 brakes failed totally when the brake friction material was depleted. The depletion of the friction material allowed the brake pistons to over-extend, unporting the hydraulic system.

Prior to the RTO, the eight brakes were acceptable for flight, but were near the established replacement limits. The replacement limits were established to assure that the brakes were not damaged during normal friction material wear. A new brake has about 2.7 inches of material available, while 0.7 inches is the minimum allowable. However, certification flight test data showed that new brakes wear, on average, about 1.5 inches during an RTO compared with the 0.7 inches available on brakes at normal replacement limits. Clearly, the replacement limits were unacceptable.

Further testing has shown that airplanes equipped with worn brakes will require extra stopping distance. This is not reflected in the airplane performance manuals. Failure to account for the additional stopping distance reduces the expected safety margin during an RTO.

In addition, the FAA-approved brake wear limits are based on normal operational requirements, not on the more demanding RTO requirements. This deficiency may exist in many categories of airplanes, resulting in the FAA being unable to guarantee acceptable worn brake performance during an RTO. As a result of Safety Board recommendations, the aviation industry has targeted many transport category brake designs for reductions in the amount of wear permitted before brake material replacement. In addition, the FAA has issued airworthiness directives, establishing appropriate wear limits for all U.S. manufactured turbine powered airplanes. Final rules addressing brake wear on foreign manufactured turbine powered transport category aircraft are currently being reviewed by the FAA.

The FAA has issued a notice of proposed rulemaking (NORM) that addresses many of the concerns addressed in the Safety Board's recommendations related to transport category brake certification. Unfortunately, the NORM will not be retroactive but will apply only to newly type certificated turbine powered transport category airplanes. In addition, the FAA, in response to the Board's recommendations, has declined to address certain known brake-related safety deficiencies in the DC-10 and possibly other transport category airplanes. The Board currently is completing its evaluation of the FAA's recent response and rulemaking action.

Aging Aircraft

The airworthiness of the aging U.S. aircraft fleet is an issue that requires constant attention by operators, airframe and engine manufacturers, and the FAA. Despite the delivery of new airplanes, the average age of the airplanes in use in the United States continues to increase, and more planes than ever have exceeded their economic design life limit.

The aging aircraft issue was brought to the public's attention by an Aloha Airlines accident in April 1988. In this accident, about 18 feet of the upper fuselage of a Boeing 737 ripped open during flight, killing one crew member. The Safety Board found that the accident was precipitated by fatigue cracking along a lap joint rivet row. In order to reduce the probability that structural fatigue cracking could contribute to additional accidents, the Safety Board recommended that the FAA require that all turbojet transport category airplanes certificated in the future receive full scale structural fatigue testing to a minimum of two times the projected economic service life. The Board also urged the FAA to require that all currently certificated turbojet transport category airplanes be subjected to such testing.

The FAA's final rule on newly certificated aircraft is in the final stages of clearance; and a draft Special Federal Aviation Regulation addressing existing airplanes based on the findings of a government/industry task force is expected to soon be presented to the FAA.

RAILROAD

Positive Train Separation

The Safety Board is a strong advocate of advanced control systems that will provide a safety net for human performance failures in the operation of trains. About 70 to 80 percent of the railroad accidents investigated by the Safety Board can be attributed to human error. The Safety Board advocates advanced electronic systems which can reduce the severity of human performance train operations accidents by overriding the engineer's actions to prevent train collisions.

The urgency of this issue has been highlighted over and over in Safety Board investigations. The train accidents that took place in Sugar Valley, Georgia; Corona, California; Knox, Indiana; Ledger, Montana; and Gary, Indiana; could have all been prevented if a fully developed positive train separation system had been in place.

The Burlington Northern Railroad independently developed its own positive train separation system known as the Advanced Railroad Electronic System (ARES). ARES

attracted a lot of interest within the railroad industry. Burlington Northern had an operating ARES demonstration system on their railroad. The system was capable of taking control of the train from the engineer if he did not obey signals or speed restrictions. Amtrak was especially impressed with the system and joined Burlington Northern in an effort to start a passenger train ARES demonstration on Amtrak owned tracks in Michigan and on Amtrak routes over the Burlington Northern. Unfortunately, the ARES program was discontinued in the fall of 1992.

The Association of American Railroads (AAR) has its own program to develop a positive train separation system. The AAR's system is known as Advanced Train Control System (ATCS). Although the AAR and its member railroads have made some progress in developing ATCS, the Safety Board believes that the AAR is not serious about pursuing

ATCS and will eventually abandon the effort. Therefore the Safety Board has issued recommendations to the Federal Railroad Administration (FRA) and the AAR to provide a firm development schedule for a fully developed ATCS system.

The Safety Board will monitor progress on this important issue and will take steps to ensure that ATCS research and development continue to be a priority. The Safety Board also intends to closely monitor the activities of the FRA, AAR, and the railroad industry on ATCS and re-address ATCS as a safety issue on each accident where ATCS may have had a positive impact.

HIGHWAY

Heavy Commercial Truck Safety

For a one year period, the Safety Board investigated every accident in eight states in which the driver of a heavy truck was fatally injured. The Board investigated 182 such accidents representing nearly 25 percent of these accidents nationwide. The Board obtained specimens and conducted toxicological tests for the presence of 44 different drugs and drug classes. The Safety Board found that 33 percent of the fatality injured truck drivers tested positive for alcohol or other drugs of abuse. Marijuana and alcohol were the most prevalent drugs (13 percent each) followed by cocaine (9 percent), amphetamines (7 percent), other stimulants (8 percent), and codeine and PCP (less than 1 percent each). Stimulants were the most frequently identified drug class. The most frequently cited probable causes were fatigue (31 percent) and alcohol and other drug impairment (29 percent).

The Board noted that fatigue and fatigue-drug interactions were involved in more fatalities than alcohol and other drugs of abuse alone. The Safety Board also identified a strong correlation between Federal hours of service regulation violations and drug use.

As a result of these investigations, the Safety Board made 46 recommendations to Federal, state, and private organizations calling for improvements in national databases on commercial truck accidents; improved and standardized post-accident toxicological specimen collection, testing, and reporting; improvements in truck driver alcohol and other drug screening and medical testing procedures; automated devices to document hours of service violations; toxicological testing of all drivers in fatal truck accidents; and a variety of state laws including a functional zero blood alcohol content for commercial drivers.

The Department of Health and Human Services (DHHS) Mandatory Guidelines for Federal Workplace Drug Testing Programs for standardized drug testing methodology and procedures is under review as a result of recommendations to DHHS and the Department of Transportation (DOT). The National Highway Traffic Safety Administration (NHTSA) is revising its Fatal Accident Reporting System (FARS) data fields to report drug testing data and will make further revisions in 1993 as a result of the Board's recommendations. The Professional Truck Driver Institute of America (PTDIA) has acted upon the Board's recommendation to disseminate information from the Safety Board study to its members. Other recommendations are being reviewed by the recipients, but are receiving a lower priority. The Federal Highway Administration (FHWA) has taken positive action on driver medical qualification recommendations. Also as a result of this study, the State of Illinois established a Safe Trucking Task Force to review commercial truck operations in Illinois and to make recommendations for improvements.

The FHWA has begun a "zero-based" regulation review with research that is designed to improve commercial truck safety. Along with this, the agency has begun a four-state roadside drug and alcohol testing demonstration project. The Board believes that the FHWA is moving properly to enhance the safety of commercial carriers. The Board's recommendation to the FHWA, calling for a performance standard on antilock braking systems for newly manufactured vehicles with airbrake systems, has been added to the heavy commercial truck safety issue area.

School Bus Safety

In May 1988, near Carrollton, Kentucky, a church activity bus was struck head-on by a pickup truck, killing the bus driver and 26 bus passengers. As a result of its investigation into this accident, the Safety Board recommended that the National Highway Traffic Safety Administration (NHTSA) upgrade current requirements in Federal safety standards for school buses pertaining to emergency egress, seating material flammability, and fuel system integrity. Also, recommendations were made to the 50 States, church

organizations, and activity groups to phase out the use of pre-standard (manufactured prior to 1977) school buses and to purchase only post-standard school buses for passenger transportation purposes.

In September 1989, the Safety Board investigated a collision between a school bus and a truck at an intersection in Alton, Texas. After impact, the school bus left the intersection and plunged approximately 24 feet into a gravel pit partially filled with water. The school bus came to rest on its left side, totally submerged in water. As a result of the crash, 21 of the 81 students on board the bus died. The students who drowned did not receive injuries which would have prevented them from escaping the submerged school bus. Egress from the school bus was hampered because of a lack of emergency exits, and because the rear emergency exit door kept closing while students tried to use it. The remaining students escaped through the side windows on the school bus even though these were not designated as emergency exits. In July 1990, the Safety Board made recommendations to the NHTSA and to private school bus organizations to upgrade emergency exit capabilities within school buses.

The NHTSA has issued final rules regarding emergency exits, improved access to side emergency doors, and enhanced visibility of emergency exits on school buses. Because of this action by the NHTSA, the Board has removed two safety recommendations from the "Most Wanted" list. Decisions regarding further actions on improved interior material flammability and fuel system integrity are still pending at the NHTSA.

Passage of Administrative Revocation of Driver's License Laws in All States

The Safety Board believes that the passage of an administrative license revocation (ALR) law is the single most important step a state can take to combat drunk driving. Under an ALR statute, the police have the right to confiscate, on the spot, the license of a driver who either fails or refuses a breath test. The effects of ALR are twofold -- the licenses of dangerous drivers are revoked more quickly, and the public is deterred from drinking and driving.

Currently, 34 states and the District of Columbia have adopted some form of ALR. Sixteen states have not passed ALR legislation. Studies have shown that ALR is effective in reducing drunk driving. The Insurance Institute for Highway Safety found that ALR laws reduced the involvement of drunk drivers in fatal crashes by nine percent during nighttime hours, when over half of all fatally-injured drivers were drunk. A study conducted by the Justice Department found that ALR programs reduced recidivism rates among drunk driving offenders. The most significant effect was found in North Dakota where the recidivism rate dropped 41 percent -- from 29 to 17 percent.

The Safety Board has joined with the NHTSA to form a national coalition of more than 30 safety, law enforcement, and health groups to work toward passage of ALR in the

remaining states. Since the coalition began work, 5 states have adopted ALR. Despite the efforts of this group, there is significant opposition in several states, by various organizations, including trial lawyers associations; state-level civil liberties groups; alcohol

beverage industry associations or representatives; and, in a few states, treatment providers and other associations dependent on DWI offender revenue. The Safety Board and the NHTSA will work with these groups to increase the likelihood of ALR law enactment.

Mandatory Use of Seatbelts

On March 1, 1988, the Safety Board published a report on its study of the performance of lap/shoulder belt systems in 167 motor vehicle crashes. Although the Board found several areas in which seatbelt systems could be improved, it also found that lap/shoulder

belts clearly offer occupants of motor vehicles substantial protection in a wide variety of crashes. Data reported by the NHTSA are consistent with the findings of the Safety Board study. The NHTSA estimates that 19,361 lives were saved between 1984 and 1989 by the use of safety belts. Of that number, 14,191 were estimated to have been saved as a result of mandatory use laws (MULs).

The Safety Board agrees that MULs are an effective way to increase the use of lap/shoulder belts systems. When its study was issued in 1988, 31 states and the District of Columbia had already enacted MULs, and Federal legislative proposals were being considered to encourage the other states to enact such laws. Because it appeared that the remaining states would quickly enact MULs, the Safety Board directed its efforts to the development of other means to increase the proper use of seatbelt systems and of ways to improve the efficiency of these systems.

In April 1991, the Safety Board recommended that the governors and legislative leaders of Alabama, Delaware, Kentucky, Maine, Massachusetts, Nebraska, New Hampshire, North Dakota, Rhode Island, South Dakota, Vermont, and West Virginia enact legislation that would require occupants of all passenger automobiles, vans, and light trucks to use lap/shoulder belt systems at seating positions equipped with such belt systems. Since this safety recommendation was issued, Rhode Island, Alabama, Nebraska, Delaware, North Dakota, West Virginia, and Vermont and Massachusetts, (effective February 1, 1994), have enacted mandatory seatbelt use laws. The Maine legislature passed such a law in 1993, but the Governor vetoed the package.

MARINEPassage of State Laws to Combat Boating While Intoxicated

Improvements are needed in recreational boating laws and regulations to deal effectively with alcohol/drug abuse on the Nation's waterways. Although action to improve recreational boating laws has been taken in many states, the Safety Board believes that more can and should be done because in some states alcohol involvement in recreational boating fatalities is as high as 80 percent.

The Safety Board continues to push for passage of state laws addressing alcohol and drug use in recreational boating. On April 13, 1993, the Board adopted a recreational boating safety study that updates information on this issue. As part of its report, the Board addressed recommendations to the various States that still need to enhance their recreational boating regulations.

To date, 40 states and two territories have strengthened their boating-while-intoxicated (BWI) laws. Most of these actions were taken as the direct result of the Safety Board's study and follow-up activities.

Foreign Cruise Ship Operation Out of U.S. Ports

In October 1989, the Safety Board completed a major study addressing significant safety deficiencies related to vessel maintenance, fire protection, and crew qualifications of foreign cruise ships operating out of U.S. ports. With the increasing numbers of foreign cruise ships carrying more U.S. citizens each year, and the Safety Board's lack of jurisdiction to investigate accidents involving these vessels when they are not operating in U.S. waters, the Safety Board is concerned that an acceptable level of safety be maintained by the cruise ship operators. Some success already has been achieved as a result of the Safety Board's initiatives to improve cruise ship safety. Requirements for improved fire hoses, low-level emergency lighting, and fire detection systems were adopted by the International Maritime Organization (IMO). Further satisfying Safety Board recommendations was the adoption of regulations to eventually eliminate grandfathering provisions of the international regulations so that older passenger vessels would be required to meet the latest Safety of Life at Sea (SOLAS) fire safety requirements.

Despite these recent advances in passenger ship fire safety, the Safety Board believes that there are still areas where passenger ship safety may be improved. In July 1993, the Safety Board adopted a special investigation report, "Accidents Involving Foreign

Passenger Ships Operating From U.S. Ports 1990-1991" (NTSB/SIR-93/01)¹, which reported on the improvements made in passenger vessel safety and which proposed safety recommendations for continued improvement. These recommendations address the need for consistent and appropriate interpretation and enforcement of international requirements as well as the need for improved emergency training and qualifications for shipboard crews. Because many of the IMO requirements are open to wide interpretation, there is no consistency among countries as to how these safety requirements are interpreted or enforced. Crew qualifications and emergency training continue to be prime concerns of the Safety Board because of repeated instances where an improper crew response has worsened an otherwise minor incident to the point where it becomes a situation of serious proportions. In addition, current recruiting practices result in passenger ship crews composed of the nationals from various third world countries. Often there are language problems among crewmembers and between crewmembers and passengers that can have dire results in an emergency. The safety of passenger vessel operations will remain in the forefront of the Safety Board's marine safety program.

The Safety Board's lack of jurisdiction to investigate an accident in international waters involving a foreign-registered passenger vessel was the focus of a request for legislation in 1990. Although Congress did not act to provide that jurisdiction, the Safety Board will continue to seek accident investigation authority to insure that U.S. passengers aboard foreign-flagged vessels operating from U.S. ports receive the same level of safety oversight that exists for other transportation vehicles.

This issue arose again in the November 6, 1993, collision between the Netherlands Antilles Registered Passenger Ship NOORDAM and the Maltese Registered bulk carrier MOUNT YMITOS. This accident occurred about 3.7 miles offshore near the entrance to the Mississippi River in the Gulf of Mexico. Because the accident site was seven tenths of a mile outside of the U.S. territorial sea, the Safety Board had no jurisdiction to investigate the accident, even though there were 1188 U.S. citizen passengers on board who were being returned to a U.S. port at the time of the accident. The Safety Board was able to participate in the Coast Guard's investigation of this accident only because the Coast Guard agreed to name the Safety Board as a party in interest.

Fishing Vessel Safety

Each year, approximately 250 fishing vessels are lost and about 100 fishermen die in the commercial fishing industry. The highest loss and fatality rates are for larger vessels, but the fatality rates for vessels under 65 feet long also are extraordinarily high. Coast Guard statistics continue to show a disproportionate number of fishing vessel casualties in relation to the number of vessels in service. Improper loading and progressive flooding

¹ Adopted July 6, 1993

continue to be the primary causes in the capsizing, foundering, and sinking of fishing vessels. Physical changes to the vessels without consideration for their effect on stability and watertight integrity also are of major concern.

The Safety Board has investigated numerous commercial fishing vessel accidents since its investigation of the capsizing of the M/V LOBSTA I off Point Judith, Rhode Island, on September 23, 1978. Safety Board recommendations have been issued covering a variety of safety issues including licensing of fishing vessel masters, requirements for emergency position indicating radio beacons, carriage of basic lifesaving equipment, and crew training. The Safety Board anticipates that the Commercial Fishing Industry Vessel Regulations, issued by the Coast Guard on August 14, 1991, and pending legislation to implement the licensing plan, could have significant beneficial effects in improving vessel and personnel safety in the commercial fishing industry. The Safety Board, however, is concerned that the Coast Guard has not yet issued stability regulations for fishing vessels under 79 feet in length.

A significant accident investigated by the Safety Board was the capsizing and sinking of the 162-foot U.S. Fish Processing Vessel ALEUTIAN ENTERPRISE in the Bering Sea on March 22, 1990, which resulted in the deaths of nine persons. The vessel had 31 persons aboard including 19 fish processors (industrial employees who are not mariners) in addition to the crew and two other persons. As a result of its investigation, the Safety Board issued recommendations concerning load line legislation. A load line certification enables the vessel to maintain adequate reserve buoyancy, and to meet high-water tightness standards. The recommendations specified that requirements for load lines be based on hazards and risks rather than on unrelated factors, such as fish processing methods, thereby making load line requirements applicable to fishing vessels and fish tender vessels, as well as fish processing vessels. Assignment of the vessel's load line helps to ensure adequate vessel stability and seaworthiness. Also of concern to the Safety Board was the difficulty that the Coast Guard had in identifying fish processing vessels that were supposed to have load lines.

Following the accident, the Coast Guard determined that about 100 fish processing vessels met the requirements for load lines, but that 60 such vessels did not. The Safety Board further recommended that, pending passage of the proposed load line legislation, the Coast Guard require owners of fish processing vessels to obtain a load line before being issued a certificate of documentation.

In September 1992, the Safety Board adopted its report of the capsizing and sinking of the U.S. Fishing Vessel SEA KING near Astoria, Oregon in January 1991. This report restated the Board's position concerning the need for commercial fishing vessel inspection, and safety training for fishermen.

As a result of the Safety Board's recommendations from the fishing vessel study and from subsequent fishing vessel accident reports the Coast Guard has proposed both a licensing plan and a vessel inspection plan to Congress. The Safety Board is awaiting Congressional action on both plans.

The Coast Guard has acted positively to solve the problems of basic lifesaving equipment requirements for these vessels. However, there are three additional areas of concern that require action by the Coast Guard. These include requirements for automatic dewatering systems; lifesaving devices to keep all persons out of the water during an emergency; and the licensing of vessel captains.

PIPELINE

Excess Flow Valves

Since 1971, the Board has advocated the use of excess flow valves to minimize the consequences of major gas leaks on service lines. In 1981, it recommended that the DOT require these valves on all single family, high pressure gas service lines newly installed or renewed. Although the DOT has not yet acted to require the use of these valves, several progressive gas distribution system operators have established practices consistent with the Board's recommendation.

On April 21, 1993, the Research and Special Programs Administration (RSPA) issued a Notice of Proposed Rulemaking (NPRM) on "Excess Flow Valve Installation on Service Lines." The Safety Board strongly supports the proposed rule requiring excess flow valves on service lines as a major step toward fulfilling one of the Board's most wanted recommendations. However, in the Board's July 6, 1993, response, we identified the need for additional performance standards in several areas that are not included with the current version of the proposed rule. In addition, the Safety Board noted that the proposed rule limits the types of excess flow valves to those without bypasses that facilitate the resetting of valves. Valves with bypasses are the most commonly used and have performed well. In fact, the cost-benefit study for the NPRM was based on valves with bypasses. The NPRM is in response to Public Law 102-508 section 104 (Excess Flow Valves - October 24, 1992), which requires the Secretary (DOT) to issue regulations within 18 months.

In August 1993 Safety Board staff attended a meeting held by RSPA on EFVs in which RSPA proposed a negotiated regulation. A negotiated regulation was not acceptable to the industry. As a result of that meeting a consensus group, that was led by the American Gas Association and the Safety Board, was organized to develop an alternative acceptable rule.

In November 1993 the consensus regulation that requested RSPA to reissue the rule with a 30-day comment period, was circulated for parties to sign. The Safety Board responded in a separate letter to AGA on November 9, 1993, that they would "comment favorably on the concepts contained in the draft proposed language". On November 19, 1993, the AGA replied to the Safety Board's letter that additional clarification was needed. That clarification was issued December 10, 1993, and AGA submitted the consensus agreement to RSPA on December 20, 1993.

This rule will be the culmination of 20 years of effort by the Safety Board to see this vital enhancement to pipeline safety become mandatory. The Board will closely monitor any further DOT rulemaking action regarding this issue.

HAZARDOUS MATERIALS

Transportation of Hazardous Materials by Rail

Railroad accidents have a significant potential for disaster when hazardous materials are involved. For example, on February 2, 1989, runaway freight cars collided with locomotive units in Helena, Montana. The explosion of one of the tank cars containing hydrogen peroxide caused extensive damage to the city and evacuation of many of its residents. As part of its investigation of this accident, the Safety Board again focused attention on the lack of puncture resistance protection, such as head shields on tank cars used to transport hydrogen peroxide and other high-risk hazardous materials; and the failure of the DOT to determine product/tank car combinations that provide sufficient protection for the transportation of hazardous materials in tank cars.

The Safety Board concluded that needless risks are taken when hydrogen peroxide and other high-risk hazardous materials are transported in tank cars without puncture resistance protection, such as head shields, and that the DOT has not used safety analysis methods to identify unacceptable risks in transporting hazardous materials and to determine the degree of risk presented by the release of hazardous materials. Consequently, the Board recommended that the DOT evaluate its present safety standards for tank cars transporting hazardous materials by using safety analysis methods, and modify existing regulations to achieve acceptable levels of safety for each product/tank car combination. The Safety Board also reiterated to the FRA, the RSPA, and the AAR its previous recommendations for head shields on aluminum tank cars, and it urged that action be expedited to require this protection. In addition, the Safety Board conducted a safety study that focused on these and other related issues identified in Safety Board investigations (see Other Significant Issues section).

The Department of Transportation is moving forward with a study designed to determine the risk/safety relationships of different hazardous materials being carried in cars with different kinds of protection. The studies are focusing on developing models and drafting rules, and will take some time to complete.

INTERMODAL

Hours-of-Work/Human Fatigue

In its investigations of numerous accidents in all transportation modes, the Safety Board has identified serious and continuing problems concerning the far-reaching effects of fatigue, sleepiness, sleep disorders, and circadian factors in transportation system safety. The Board has identified a lack of training for both employees and supervisors on the problems associated with work and rest schedules, and the effects such schedules have on safety and performance. It has become apparent to the Board that neither management nor labor in the transportation industry properly considers the adverse effects of irregular and unpredictable cycles of work and rest on vehicle-operating personnel. While there has been some private research conducted on this issue, in 1989 the Safety Board was unaware of any systematic activity by the DOT to address these safety concerns. Consequently, the Safety Board issued safety recommendations to the DOT asking that coordinated research programs be expedited, that educational material be developed and disseminated to transportation industry management and other personnel regarding this issue, and that all DOT regulations related to work scheduling and hours-of-service be reviewed and upgraded to incorporate the results of the latest research.

The Secretary of Transportation responded to these safety recommendations on August 11, 1989, citing: ongoing human factors research in the various modal administrations of the DOT; the DOT Research and Development Coordinating Council; the then proposed DOT National Transportation Policy statement; and ongoing reviews of policy regarding dissemination of educational materials and hours-of-service regulations in the various modal administrations.

In further response to these safety recommendations, in a September 1990 briefing of Safety Board staff, officials from the DOT pointed out that DOT policy included the conduct of a comprehensive program of research on human factors in transportation, including the causes of transportation accidents and the effects of operator impairment, perceptual errors, and fatigue, as well as design and operating changes that can eliminate or reduce those effects. Each of the modal administrations discussed ongoing efforts related to this issue and how the individual efforts fit into the overall DOT policy. A further briefing was provided in October 1991.

On June 10, 1992, the Safety Board again reiterated its concerns about the need for changes in the work/rest rules of the Hours of Service Act before the House of Representatives, Committee on Energy and Commerce, Subcommittee on Transportation and Hazardous Materials. Work/rest fatigue accidents continue to occur even though there may be compliance with the Act. A third briefing on this issue was provided by the DOT on September 29, 1993

A prolonged, sustained effort will be necessary to resolve this issue. To ensure positive results, the Safety Board will continue to stress its importance and will cite it in pertinent accident investigations in all modes. The Board will arrange for annual progress briefings from the DOT on this issue.

Uniform Industry-Wide Policy on Collection, Processing and Testing for the Detection of Alcohol and Drugs

Investigations of transportation accidents conducted by the Safety Board have created concern about the prevalence of drug and alcohol use and its effect on the safety of the traveling public. Substance abuse has been particularly evident in highway accidents and, to a lesser extent, in rail, aviation, and marine accidents. The Board believes that the problems of drug and alcohol use in transportation should receive the highest level of attention by the DOT, specifically in regard to the DOT's drug and alcohol testing regulations. The Safety Board commends the efforts by the DOT to develop regulations to eliminate drug and alcohol use in transportation.

The Safety Board, however, does take exception to the inconsistent approach taken by the DOT in the formulation of those regulations that pertain to the drug and alcohol testing of persons involved in accidents or incidents. Substantial differences exist among the post-accident/incident sampling and testing requirements for the various transportation modes and between the drug testing policies for DOT employees in safety sensitive positions and for private sector employees. Furthermore, the testing requirements of many pertinent regulations are not sufficient to permit the Safety Board or the modal agencies to identify the extent to which drug and alcohol abuse contributes to transportation accidents.

In 1989, the Safety Board called upon the DOT to adopt uniform regulations for all drug and alcohol testing in all transportation modes and for employees of the DOT in safety sensitive positions. These regulations include: rules for post-accident testing that are separate from other types of testing; the inclusion of alcohol and other drugs presently omitted in some modes; and a requirement that testing be done within four hours of any accident. In addition, instead of the .04 percent blood alcohol concentration standard for intoxication now used in some modes, a BAC standard of 0.00 should be adopted.

Although the DOT continues to consider these recommendations, little specific action has occurred to implement them. The DOT and the Safety Board have had several discussions regarding these safety recommendations and the DOT offered a formal response on August 3, 1990. However, based on that response and on the various meetings held between the Safety Board and the DOT staff, the Board remains concerned that no substantive action has been taken to resolve these issues. On June 25, 1991, the Safety Board reiterated its concerns in this matter in its final report of the December 3, 1990, ground collision of two Northwest Airlines airplanes at Detroit.

On December 15, 1992, the DOT published an NPRM addressing the testing of transportation industry employees for drugs and alcohol. The Board evaluated the proposed rule and determined that it did not address the post-accident testing called for in the Board's recommendations. As a result, the Board will continue to pursue implementation of these recommendations.

OTHER SIGNIFICANT SAFETY ISSUES

The following other significant safety issues, which have been identified and explored in completed or ongoing Safety Board investigations and studies, provide additional examples of the Board's efforts to ensure public confidence in the Nation's transportation system.

AVIATION

Marvel-Schebler Model HA-6 Carburetors

On August 7, 1992, a 1976 Rockwell International Model 112TC airplane, N30MT, lost engine power and crashed during an approach to land at the Winner/Bob Wiley Airport, Winner, South Dakota. Subsequent investigation disclosed that a loss of power occurred when the shaft retaining screw on the Marvel-Schebler Model HA-6 carburetor's rotary mixture control failed due to excessive wear. This allowed the loose mixture control to vibrate out of its proper position and reduce or disrupt fuel flow to the engine. An accident precipitated by a similar Model HA-6 carburetor failure occurred on August 23, 1991, about 55 miles southwest of Fedonia, Arizona, involving a 1978 Cessna Model R182, N9067C.

In September 1978, Marvel-Schebler/Tillotson (the original manufacturer of the model HA-6 carburetor) issued Service Bulletin (SB) No. A1-78, "Improved Retaining Method for Mixture Control Assembly on Model HA Carburetors With Rotary Mixture Control," and recommended that it be complied with at the next inspection or as soon as possible. This SB, which had not been accomplished on either N30MT or N9067C, provides for the installation of a spring retainer to counteract end-play wear on the mixture control assembly and retaining screw due to vibration. Moreover, the spring, which can be installed without removing the carburetor from the engine, serves as an additional means of retaining the rotary mixture control even if the existing shaft retaining screw is worn or broken. In February, 1978, Marvel-Schebler began installing the spring retainers on all newly manufactured Model HA-6 carburetors and, shortly thereafter, changed the design of the mixture control retention assembly.

In addition to the worn and broken carburetor mixture control retaining screws evidenced above, several service difficulty reports also have been submitted to the FAA referring to similar problems on other Marvel-Schebler Model HA-6 carburetors. In order to preclude the possibility of serious or fatal injuries as a result of a recurrence of accidents similar to those involving N30MT and N9067C, the Safety Board, on June 3, 1993, issued Safety

Recommendation letter A-93-65 to the FAA regarding this matter. It recommended that the FAA issue an AD applicable to all Marvel-Schebler Model HA-6 carburetors manufactured prior to February 1978, requiring compliance with SB No. A1-78 at the next 100-hour or annual inspection, whichever occurs first.

Piper PA-28R and PA-44 Nose Landing Gear

A recent review and evaluation by the National Transportation Safety Board of the Federal Aviation Administration's accident/incident data (AID) and service difficulty reports (SDRs), applicable to Piper PA-28R series single-engine airplanes and PA-44 series twin-engine airplanes, disclosed that the nose landing gear in these airplanes frequently collapsed. Between January 1986, and June 1993, these airplanes were involved in 87 such occurrences, and 96 SDRs were submitted concerning nose landing gear malfunctions. A significant number of the collapsed nosegear occurrences, primarily those involving PA-44 airplanes, are due to broken AN4-20 bolts, which are used to connect the nosegears' lower drag link to the upper drag link.

On July 29, 1986, Piper issued Service Letter No. 988, "Nose Landing Gear Modification" applicable to both PA-28R and PA-44 series airplanes. This Service Letter announced the availability of a Nose Landing Gear Modification Kit which, when installed, will reduce the possibility of damage. The modification kits consist essentially of a close tolerance bolt, four bearings, and other associated hardware to be installed on the draglink assembly. The close tolerance NAS464P4-27 bolt provided replaces the AN4-20 bolts used to connect the upper and lower draglinks.

On September 23, 1993, the Safety Board issued Safety Recommendation A-93-117 to the FAA recommending the issuance of an AD applicable to Piper PA-28R and PA-44 series airplanes requiring compliance with Piper Service Letter No. 988 at the next annual or 100-hour inspection, whichever occurs first.

Cessna 172RG Main Landing Gear Pivot Assembly

On April 2, 1991, the pilot of a Cessna Model 172RG, N9592B, made an intentional wheels-up landing at DuPage Airport, West Chicago, Illinois, after repeated attempts to lower the landing gear resulted in extension of only the left main and nose gears. The airplane, which had accumulated a total time of 4,567 hours in service, sustained only minor damage, and neither of the two persons aboard was injured. A metallurgical examination disclosed that the splined aluminum shaft on the right main landing gear pivot assembly (P.N. 2441100-1) had failed in torsional overload. Cracks were observed at the roots of many of the spline teeth and were observed to have propagated a significant distance into the shaft. The left main landing gear pivot assembly was found cracked in

the same location. Fracture of the splined shaft separated the pivot assembly and gear strut from the hydraulic actuator, making mechanical extension of the landing gear impossible.

Since 1988, there have been a significant number of incidents involving fractured spline-shafts on Cessna Model 172RG main landing gear pivot assemblies. Moreover, between January 1, 1986, and February 26, 1993, 20 Service Difficulty Reports (SDR) were submitted to the FAA regarding main landing gear pivot assemblies on these airplanes. These reports reflect two failure modes related to cracking or fracture of the pivot assembly shaft in two distinct areas of the spline. Therefore, on June 28, 1993, the Safety Board issued recommendations A-93-74 and -75 to the FAA regarding this matter. The first recommended that the FAA issue an AD applicable to Model 172RG airplanes requiring an initial inspection of main landing gear pivot assemblies at 2000 hours time-in-service and at appropriate intervals thereafter. The second recommended that the FAA require the Cessna Aircraft Company to change the design of the splined pivot shaft in the main landing gear of these airplanes to improve its structural integrity and durability and preclude the requirement for repetitive inspection.

Piper Cheyenne In-Flight Loss of Control

On November 5, 1992, a turboprop-powered Piper Cheyenne Model PA-31T-620 experienced a loss of elevator pitch control and entered a series of pitch oscillations, climbing and descending, until the pilot eventually regained control and stabilized the airplane at flight level 210 through the judicious use of engine power and the elevator trim tab. He then declared an emergency and subsequently landed without further incident. A subsequent inspection of the airplane disclosed that the aft rod end bearing (P/N 49261-02) connecting the elevator control tube to the elevator horn had failed due to fatigue cracking, separating into two pieces in the threaded section. As a result, the elevator control was mechanically disconnected from the pilot's control yoke and the elevator downspring.

In view of this accident and two other fatal accidents involving in-flight loss of control for undetermined reasons in similar airplanes, the Safety Board, on August 31, 1993, issued several Urgent Recommendations to the FAA. The Safety Board recommended, among other things, that the FAA issue an AD, applicable to all Piper Cheyenne PA-31T series turboprop airplanes, requiring an inspection of the elevator control tube assembly and rod end bearing for evidence of cracks or excessive wear. The Safety Board also recommended that the FAA require that the maintenance inspection program of all certificate holders operating Piper PA-31 series airplanes under 14CFR Part 135 include requirements for a similar inspection of the primary and secondary flight surface control tube assemblies (pushrods) and rod end bearings in these airplanes.

FAA Flight Inspection Airplane

On October 26, 1993, a Beech model 300 KingAir, operated by the Federal Aviation Administration crashed near Front Royal, Virginia. The airplane was operated by the FAA Flight Inspection Area Office in Atlantic City, New Jersey. Shortly before the accident the flightcrew had completed a flight check of the instrument landing system at Winchester, Virginia. At the time of the accident the airplane was being operated under visual flight rules and the flightcrew was in the process of obtaining an instrument flight rules clearance to their next destination of Newport News, Virginia. Witnesses reported that there were low clouds and fog obscuring the mountains and that the airplane was flying near the base of the clouds at the time of the accident. Although the investigation is still in process, the Safety Board has made several recommendations to the FAA. The recommendations address the surveillance FAA flight operations, the modification of procedures used by the flightcrew, and changes to the flightcrew training programs.

Instrument Landing System (ILS) Signal Deviations

On November 16, 1993, a United Airlines Boeing 757 experienced a uncommanded veer to the left shortly after touchdown at Orlando, Florida. At the time of the incident, the airplane was on an AUTOLAND approach to a CAT-I runway in VFR conditions. The flightcrew reported that the approach and touchdown were normal but the airplane suddenly deviated about 30 feet to the left of the runway centerline. The captain disengaged the autopilot and corrected the airplane back to the centerline. On November 25, 1993, another United 757 experienced a similar uncommanded veer to the right at Los Angeles, California. The airplane was also configured for an AUTOLAND approach and landing in VFR conditions but to a CAT-II runway. Additionally, the Safety Board has recently learned of a similar event that occurred in Paris, France, involving a Boeing 767. The investigations indicate that the cause of the veers was deviations of the ILS signal. In VFR conditions the normal ILS signal protections may not be in place on CAT-II and III runways, and on CAT-I runways the validity of the ILS signal is not measured below 50 feet above the ground. The Safety Board is examining the actions that should be taken to further prevent such incidents and possibly prevent an accident.

Uncommanded Rudder Inputs during AUTOLAND Landings

On June 15, 1993, United flight 940 veered off the runway while landing at Frankfurt, Germany. The flightcrew reported that shortly after touchdown there was an uncommanded right rudder input and that the opposite rudder would not correct the problem. When the airplane departed the right side of the runway, it was being manually flown, and the autopilot had been disconnected. The flightcrew stated that the rudder worked correctly and they were able to get the airplane back on to the runway when the rudder suddenly stuck to the right once again. The investigation of the accident has been

delegated to the Safety Board by the government of Germany. The CVR and DFDR were brought to the Safety Board laboratory for examination. Although the investigation is still in progress, there have been no firm leads as to the cause of the uncommanded rudder input.

Piper PA-31 Engine Cows

On May 1, 1991, a Piper PA-31 crashed near Bennett, Colorado, killing the pilot. The Safety Board investigation of the accident disclosed that the left engine cowl assembly had separated in flight and struck and damaged the upper portions of the vertical fin and rudder. A review of service difficulty reports and accident/incident data disclosed at least 22 other reports of in-flight loosening or separation of PA-31 engine cowl. As a result, the Safety Board recommended that the FAA require the inspection of all PA-31 engine cowl at the next annual or 100-hour inspection; the application of decals and/or paint stripes on the cowl to indicate open and locked positions of cowl fasteners; and the amendment of PA-31 preflight inspection procedures to ensure that all cowl fasteners are securely fastened.

The FAA currently is reviewing these safety recommendations with the Piper Aircraft Corporation. The FAA also has published an article in Advisory Circular (AC) 43-16, "General Aviation Airworthiness Alerts", emphasizing the hazards of in-flight engine cowl separation and the importance of ensuring that cowl assemblies are properly secured during preflight.

Boeing 747 Autopilot System

In December of 1991, the Safety Board participated in the Canadian investigation of an in-flight upset of a Boeing 747 airplane. The cargo plane, carrying a crew of five, slowly rolled into a 95 degree bank while the airplane was being operated on the autopilot. The crew regained control of the airplane and made an emergency landing, averting the loss of the airplane. During the upset, the airplane fell nearly two miles and sustained major structural damage. The investigation revealed areas of concern in the design of the autopilot system. As a direct result of its participation in the investigation, the Safety Board issued recommendations to the FAA to review the autopilot system design and correct any deficiencies for the Boeing 747 series airplanes. Recommendations also were made to examine autopilot systems of other transport airplanes and to incorporate a warning system on the Boeing 747 series airplanes that will alert the pilots when the airplane exceeds normal in-flight bank angles.

In July 1992, the FAA responded favorably to the Board's recommendations. The Safety Board will continue to monitor this issue until its recommendations are implemented.

Thermal Protection Standards for Flight Recorders

Since 1989, eleven accidents have occurred in which vital flight recorder information from cockpit voice and flight data recorders was lost as a result of the thermal destruction of the magnetic tape recording media. These eleven accidents involved 12 of the 99 flight recorders known to have sustained thermal damage by post-impact fires since 1966.

An examination of the fire survival data clearly indicates the vulnerability to post-impact fires of recorders qualified to the minimums required by the nearly 20-year-old guidelines of Technical Standard Orders (TSO) C51a and C84. The 45 percent loss of the recording media experienced by these recorders when exposed to post-impact fires is unacceptable.

Historical fire survival data also indicate the superiority of the recently issued TSO C124 (and C123) over TSO C51a (and TSO C84) in prevention of the thermal destruction of the recording media in post-impact fires. However, the recent loss of data from thermal damage of three recorders that met the fire protection requirement of TSO C124 raises the questions about the adequacy of the fire test requirements in TSO C124 (and C123). In nearly all the accidents in which the recording media were destroyed or damaged by fire, the fires have been of relatively low temperature (from 250° to 850° C) for an extended duration (2 to 46 hours). The test requirements in TSO C124 (and C123) address only the short-term, high intensity fire (30 minutes at 1,100° C).

In May 1992, the Safety Board issued recommendations to the FAA that would phase out recorders that only meet TSO C51a or C84 standards. In addition, the Board recommended that the FAA conduct a study, based on accident case histories, to determine a realistic thermal profile and test protocol for improved flight recorder fire test requirements that reflect the actual environment of post-impact fires. The Safety Board also recommended that the FAA issue new technical standards based on the findings of the study. The FAA concurred with the Board's recommendation and a study is under way at the FAA's technical center.

However, the Safety Board is concerned that this report may not be expeditiously incorporated into revised flight recorder TSOs. The Technical Center released a similar test report in 1970, which concluded that the fire test criteria in effect at the time, TSOs C51a and C84 were not adequate. In spite of this, and the issuance of updated flight recorder TSOs (C123, 1991 and C124, 1992), TSOs C51a and C84 remain in effect. The FAA agreed to cancel TSOs C51a and C84 in August 1992, but has yet to take any action.

Piper PA-25 In-Flight Wing Separation

On September 21, 1991, a Piper PA-25-235 crashed in a field near Brewton, Alabama, after the left wing separated from the airplane. The airplane had completed a chemical spraying run in a field and was performing a pull-up maneuver when the structural failure occurred. The airplane was substantially damaged and the pilot suffered serious injuries. Examination of the front spar attachment for the left wing disclosed evidence of a progressive separation on the fuselage side of the attachment. There also was an extensive oxidation layer between the sections making up this fitting assembly, indicating that the corrosion had occurred over an extended period of time. However, there are no Piper service bulletins (SB) or FAA (ADs) for the model PA-25 airplane that address the wing front spar fuselage attachment assembly. As a result of this investigation the Safety Board issued an urgent safety recommendation to the FAA calling for the immediate inspection for corrosion and cracking of wing front spar fuselage attachment assemblies; repair, by an FAA approved method, of any fitting assembly that contains cracking or corrosion damage; and periodic inspection of the wing front spar fuselage attachment assemblies at intervals that will detect cracking before it becomes critical to safe operation of the airplane.

In its response of July 16, 1992, the FAA agreed with the intent of the recommendation and said it would consider issuing an NPRM to address these problems. Because the FAA did not take prompt action to issue an AD, the Safety Board classified Safety Recommendation A-92-36 "Open--Unacceptable Response."

On May 21, 1993, another Piper PA-25 airplane crashed in Essex, Iowa, and the pilot sustained fatal injuries. The Safety Board determined that fatigue cracking of the wing attachment fitting caused the in-flight wing separation of this airplane crash. On September 8, 1993, over a year after it received the urgent recommendation, the FAA issued an NPRM (docket No. 92-CE-63-AD) proposing to adopt an AD for certain Piper PA-25 series airplanes that would require repetitive inspections of wing forward spar fuselage attachment assemblies for cracks or corrosion, and replace or repair any cracked or corroded part. The Safety Board supported the inspection methods and repair procedures described in the proposed AD. However, since the FAA failed to issue an AD in a timely manner the Safety Board reclassified Safety Recommendation A-92-36 as "Closed--Unacceptable Response" and on October 28, 1993 issued recommendation A-93-126, again asking the FAA to issue an emergency AD pertaining to the inspection and repair of wing forward spar fuselage attachment assemblies on Piper PA-25 airplanes.

Boeing 747 Cargo Door Wiring Bundle Chafing

On June 13, 1991, while at John F. Kennedy Airport, Jamaica, New York, maintenance personnel found that the aft cargo door on a Boeing 747 airplane would not open. During subsequent troubleshooting of the door, chafed electrical wires in the wiring bundle

between the fuselage and the door shorted and the door began to open without activation of the door open switches. The area with the shorted wires was within a flexible conduit that was intended to protect the wires from damage. The wire chafing was caused by sharp edges of circumferential cracks in the conduit. The cracks were caused by repeated flexing of the conduit during opening and closing of the door. The Safety Board recommended that the FAA require periodic inspection of the aircraft cargo door wiring bundle on Boeing 747 airplanes and that the flexible conduit on the forward cargo door be evaluated to determine if the underlying wiring bundle also should be inspected.

The FAA issued an NPRM addressing the Safety Board's concerns of wire bundle chafing in B747 cargo doors. Then on December 21, 1992, the FAA withdrew the NPRM stating that, "at least four independent failures must occur in order to drive the door latches to the open position." The FAA also stated in a letter to the Safety Board that mandatory safety improvements to the Boeing 747 cargo doors provide an adequate level of safety to prevent an uncommanded opening of a cargo door.

The FAA also expressed concern that the recommended inspections could result in damage to the wire bundle insulation during the intrusive inspection. Based on the level of redundancy that now exists to prevent inadvertent door opening in flight, the Safety Board classified the recommendations on this subject as "Closed--Reconsidered." The Safety Board will continue to monitor failures or faults involving this installation and will initiate further action if warranted.

Saab 340A Propeller Gearbox Shaft Failure

On November 21, 1991, the right propeller separated from a Saab 340A airplane. During several minutes of heavy vibration preceding the separation, the crew did not remove power from the vibrating engine. Fortunately, the separated propeller did not contact the airplane after it broke free, and no damage or injury resulted. After the separation, the propeller fell into Lake Erie and the airplane landed safely in Buffalo, New York. The loss of the propeller was a result of fatigue cracking in the forward end of the gearbox shaft to which the propeller hub is bolted. An elongated inclusion area intersected the fracture surface approximately at the origin area of the fatigue crack and may have been the cause of crack initiation. The Safety Board recommended that the FAA require periodic inspection of the gearbox shafts on applicable engines and that pilots be advised to consider shutting down a vibrating engine as soon as practical.

The FAA did not act on the Safety Board's pilot advisory recommendation; however, Saab issued an All Operators Letter that met the Safety Board's concern in this area. The FAA did require a one-time inspection of the gearbox shafts. General Electric is developing tooling and procedures to ultrasonically inspect shafts currently in service, and the FAA

has indicated that the inspection will be mandated once it is developed. Because the ultrasonic inspection is expected to detect defects that can initiate cracking, a mandatory inspection program of this type would satisfy the Safety Board's concerns in this area.

Piper PA-46 Series Malibu/Mirage Airplanes

Between May 31, 1989, and March 17, 1991, seven Piper PA-46 series Malibu and Mirage airplanes were involved in fatal accidents in the United States, Mexico, and Japan. In-flight structural failures of the wings and empennage following unexplained departures from controlled flight were cited in each of these accidents. In response to the alarming number of these accidents in such a short period of time, the Safety Board conducted a special investigation. The intensive investigation examined a number of areas including the adequacy of the airplane design certification requirements, the aircraft's structural integrity, the aircraft systems, flight performance, autopilot, and human performance issues, including pilot training. The report, which was adopted by the Safety Board on July 21, 1992, contains details regarding the Malibu accidents and related incidents, and technical information relating to the various phases of the special investigation. As a result of the investigation, the Safety Board issued six safety recommendations to the FAA calling for more stringent pilot training requirements for pilots of small pressurized airplanes, the addition of a pitot heat operating light in PA-46 and similar airplanes, revision of checklists in the pilot operating handbook and the airplane flight manual for PA-46 and similar airplanes, and improved training material for integrated flight guidance and control systems. Since the report was issued, there have been two additional accidents involving the Malibu, one in Finland, and one in Sweden. The Safety Board is providing technical assistance to both investigations. The FAA advised the Safety Board on November 30, 1992, that it generally agreed with, and planned future actions to address the Board's safety recommendations.

McDonnell-Douglas MD-80

On December 27, 1991, a Scandinavian Airlines System MD-80 crashed shortly after takeoff from Stockholm, Sweden. The pilot was able to crash land the airplane in an open field with only seven serious and seven minor injuries among the 129 people on board. The accident was investigated by the Government of Sweden with the assistance of Safety Board investigators. The investigation determined that clear ice had accumulated on the airplane's wings and came loose during takeoff. The ice was then ingested by the engines which caused the engines to surge severely, lose power, and eventually flame out completely. A final report was issued by the Swedish Investigation Commission on October 20, 1993. The investigation determined that the reaction of the airplane's autothrottle system was incompatible with the power recovery requirements of a surging engine. The FAA has since issued an airworthiness directive that informs pilots to disengage the autothrottle system if an engine surges during takeoff. Additionally, the

manufacturer has modified the programming of the autothrottle system to prevent similar such occurrences. As a result of the investigation, the Safety Board issued a recommendation to the FAA to require that dynamic forces be considered during the certification of overhead stowage bins rather than the current static loads. The FAA responded that it will take positive action to address the Board's concerns.

Aircraft Maintenance

The Safety Board's investigation of the September 11, 1991, in-flight breakup of a Continental Express, Embraer Brasilia EMB-120 airplane, near Eagle Lake, Texas, found that the airplane had undergone maintenance work in the Continental Express hangar the night before the accident. During the second shift, the scheduled removal and replacement of both the left and right horizontal stabilizer leading edge/deice boot assemblies was initiated. Two mechanics and an inspector assisting in the work gained access to the "T-Tail" and removed the screws from the top of the left side leading edge. However, a maintenance personnel shift change occurred before the work was completed, and the upper screws were not replaced.

The airplane was assigned a morning passenger flight from Houston to Laredo, Texas. The accident took place on the return trip from Laredo to Houston. A detailed investigation was completed on the maintenance procedures and personnel activity at the Houston base of Continental Express. The investigation revealed deficiencies by maintenance personnel in complying with the company procedures outlined in the Company's General Maintenance Manual (GMM), and deficiencies in general supervision and management practices in the maintenance department.

As a result of these findings the Safety Board issued two recommendations to the FAA. The first was to enhance FAA surveillance of Continental Express, and the second was to enhance FAA program guidelines.

Aircraft Magnetos

Since 1985, the Safety Board has cited aircraft magnetos as a cause or factor in 92 general aviation accidents involving 22 fatalities and 21 serious injuries. Magnetos are often viewed as integral ignition modules and are inspected, serviced, overhauled, or replaced only when gross malfunction or failure occurs. For example, in performing annual and 100-hour inspections of reciprocating engine-powered aircraft, maintenance personnel normally do not remove magnetos since there is no specific regulatory requirement for their routine periodic removal, overhaul, or comprehensive inspection. As a result, there is no assurance that the magneto components are in proper condition or that the magnetos are capable of continued safe, reliable operation. Therefore, on April 29, 1992, the Safety Board issued several recommendations to the FAA indicating, among

other things, that magnetos should be removed, disassembled, and inspected every 500 hours and overhauled at appropriate intervals in accordance with the magneto manufacturer's maintenance guidelines and detailed overhaul procedures. The recommendations affect an estimated 150,000 airplanes. The FAA has published an article concerning magneto maintenance in AC No. 43-16 and is considering an AD regarding magneto ignition coils. The Safety Board has asked the FAA to consider requiring periodic magneto inspection and overhaul under its Aviation Rulemaking Advisory Committee.

Flight Attendant Emergency Procedure Training Programs

The FAA requires that air carriers who operate airplanes with nine or more passenger seats under 14 CFR 121 and 19 passenger seats under 14 CFR 135 have flight attendants on board to perform safety related duties. These duties typically include preparing the cabin and the passengers for takeoff and landing; conducting pre-departure and pre-landing safety briefings; maintaining seat belt discipline during turbulence; locating and attacking cabin fires; maintaining communications and coordination among and between the flightcrew and flight attendants during emergencies; attending to ill or injured passengers and crewmembers; ensuring that passengers respond properly during a decompression; preparing the cabin and the passengers for a ditching, and if there is a ditching, controlling the flow of passengers into life rafts and operating water survival equipment; and opening the emergency exits and controlling the flow of passengers onto the evacuation slides. Air carriers are required by the FAA to conduct extensive initial training and recurrent training every 12 months thereafter for all flight attendants to provide the knowledge, skills, and abilities to perform emergency procedures and to operate emergency equipment. The FAA-approved recurrent training programs can employ such training techniques as workbooks that are completed at home before the class, a variety of audio-visual aids, computer assisted teaching aids, and mockups or other training devices that provide hands-on operation of emergency exits, fire extinguishers, megaphones, protective breathing equipment, and oxygen systems. Flight attendants must successfully complete emergency procedures training to qualify for all types of airplanes on which they may be required to serve.

The Safety Board reviewed its investigations of accidents and incidents where information was available on flight attendant performance during emergency situations. There are many examples of flight attendants who have performed extremely well, even heroically, during life-threatening emergencies.

In several recent accidents that involved air carriers that operate under 14 CFR 121, the Safety Board found that although flight attendants provided valuable assistance to passengers during emergency situations, they did not always follow their air carrier's approved emergency procedures, did not perform their duties in accordance with their training, or lacked knowledge about emergency equipment and procedures. Following

two recent accidents, the Safety Board determined that the number of injuries sustained by passengers during the emergency evacuations actually increased because of flight attendant actions, although their performance did not adversely affect occupant survival. In other situations the same actions could have disastrous results.

The Safety Board strongly believes that the ability of flight attendants to perform their duties successfully during emergency situations is directly related to the comprehensiveness, realistic nature, and quality of their emergency procedures training. Conversely, regardless of the quality of an air carrier's training program, it is incumbent upon each flight attendant to recognize the importance of active participation in all aspects of their emergency training. Therefore, because flight attendant recurrent training may not adequately prepare flight attendants for actions that they may be required to take during emergency situations, the Safety Board conducted a special investigation into all aspects of flight attendant recurrent training programs. The investigation, which included visits to 12 air carrier training facilities, examined the adequacy of the FAA process to approve the programs and to grant waivers for less than required hours of instruction for recurrent training, and previous Board actions that have addressed training programs.

The Board's special investigation report, entitled "Air Carrier Flight Attendant Training Programs", found inequities and disparities in air carrier flight attendant recurrent training programs that involve the numbers of hours allocated for classroom and hands-on recurrent training and permitted for home study, the number of different types of airplanes in which flight attendants are qualified, and the ratio of instructors to students. Also discovered was the need to improve and standardize FAA procedures for the review, approval, and surveillance of recurrent training programs and for granting waivers to current Federal Aviation Regulations to reduce hours of recurrent training. As a result of this special investigation, the Board issued 13 safety recommendations to the FAA calling for action to address these deficiencies.

The FAA has responded positively on eight recommendations and the Board has asked the FAA to reconsider its position to take no action on five of the recommendations.

Rejected Takeoffs (RTOs)

Early in 1990, the Safety Board completed an investigation of pilot training and procedures for rejected takeoffs. During the investigation, flight training at nine airlines in the U.S., chosen as representatives of the spectrum of large and small scheduled passenger airlines operating today, was observed. A special investigation report was issued that contained nine safety recommendations addressing Federal Aviation Regulations on takeoff speeds, the need for ground school and flight training, the execution of RTOs, and the use of autobrakes on takeoff.

This investigation followed several rejected takeoffs that led to runway overruns and the destruction of aircraft, including a McDonnell Douglas DC-10 (see "Most Wanted" section: "Aircraft Brake Certification"). In addition, Safety Board data showed that from 1962 through 1987, 45 RTOs had occurred and had caused at least minor damage to the aircraft involved. Of those 45, nine led to destruction of the aircraft and four resulted in fatalities.

The investigation found that many pilots are not aware of the factors involved in determining an airplane's accelerate-stop distance. In addition, during flight training, few pilots are introduced to non engine-related events that would enhance the accomplishment of the RTO. The Safety Board's recommendations addressed these and other deficiencies uncovered in the investigation.

The Special Investigation Report was issued about the same time as an industry task force report, which also examined ways of improving the safety of rejected takeoffs. Many of the findings and recommendations of the Safety Board investigation were reflected in the report of the industry workshop, which recognized the need for modifications of training and procedures to improve pilot performance in recognizing the need for and execution of rejected takeoffs.

The Boeing Company, working with representatives of other industrial and governmental organizations, developed a comprehensive takeoff safety training aid that was released by the FAA for use in airline training programs. The Safety Board believes that the potential hazard associated with an RTO will be reduced by this improved training and will continue to urge the FAA to implement all of the Safety Board's recommendations regarding RTOs to further reduce the likelihood of future RTO accidents.

Infant and Small Child Restraints

The Safety Board recommended that the FAA require that children under two years of age occupy an approved restraint device and that the FAA conduct research into ways to better protect children who are too large to occupy a child safety seat.

During the July 1989, United Airlines DC-10 crash in Sioux City, Iowa, one flight attendant and 110 passengers were killed. Three of the four in-lap infants on board sustained minor injuries, and one infant died of smoke inhalation. None of the infants occupied a child restraint device. The use of FAA-approved safety seats for infants and small children was addressed during the Safety Board's public hearing following this accident. The FAA and the Air Transport Association (ATA) testified to the obvious crash protection benefits for infants and small children who occupy these FAA-approved seats. However, both testified that some airlines do not permit child safety seats on board their aircraft,

and further, that some airline employees, not knowing that FAA-approved child restraints may be used, deny their use. Because some safety seats are too large to fit onto passenger seats safely, the ATA and the Society of Automotive Engineers formed an ad hoc committee with the seat manufacturers to explore ways to accommodate the size of the child restraints to aircraft seats. The committee continues to examine ways to reduce the size of child seats.

Since the United accident, the Safety Board has pursued the safety of infants and small children before Congress, the media, and public interest groups to demonstrate the need for the FAA to expedite rulemaking. In July 1990, the Board testified before the House Public Works and Transportation Subcommittee on Aviation endorsing the use of FAA-approved safety seats to protect infants and small children. The Aerospace Medical Association and the Fellows of the American Academy of Pediatrics have endorsed the need for infants and small children to occupy approved restraints when traveling on aircraft.

The Safety Board again addressed the need for infants and small children to occupy FAA-approved restraints in its report of the January 1990, accident involving Avianca Airlines Flight 052, a Boeing 707-321B, which ran out of fuel and crashed in a wooded residential area at Cove Neck, New York. Several infants and small children were held by adults who had placed their seatbelts around their children. Both the adults and children received serious injuries in the crash. Had these infants and small children occupied approved infant/child restraints, their injuries could have been less severe.

On February 25, 1991, and again on April 11, 1991, the Safety Board testified before the Government Activities and Transportation Subcommittee of the House Committee on Government Operations. The Board's testimony pointed out the need for the FAA to require children and infants to be restrained, and to conduct research for methods to restrain children who have outgrown child safety seats. On September 14, 1992, the FAA issued a final rule "requiring airlines to allow the use of approved child restraint systems on their aircraft." The FAA also maintains that children who have outgrown the FAA-approved seats are adequately restrained by existing seatbelts. The Safety Board has advised the FAA that the final rule does not satisfy the Board's concerns and has again urged the FAA to require, rather than merely permit, the use of child restraint systems aboard aircraft.

On August 31, 1993, the Board recommended that the FAA prohibit two or more persons from using a safety belt that is designed for use by one person, regardless of age of the person, and educate general aviation pilots of the benefits of using the same safety belt. These recommendations resulted from the Board's investigation of three accidents that involved general aviation airplanes. In two accidents the children were held by adults and shared the adults' safety belts. The children died from injuries caused by the adults'

being accelerated forward and over the children. In the third accident the two children survived because they were restrained by FAA approved Car Safety Seats. The Board is evaluating the FAA responses to these safety recommendations.

Alcohol and Other Drugs in Fatal General Aviation Accidents

This study reviewed the involvement of alcohol and drug use in aviation accidents investigated by the Board since 1982. As part of the study, the Board, using accidents in which the pilot-in-command was fatally injured, compared accident characteristics, pilot characteristics, and accident causes for fatal accidents in which alcohol or other drugs were a factor with those in which there was no alcohol or other drug involvement.

The study showed that the percent of conclusive toxicological tests that were alcohol positive for fatally injured general aviation pilots decreased from about 10 percent (corresponding to about 47 accidents per year) in the mid-70s to about 6.0 percent (about 17 accidents per year) in the late 1980s. However, data on the general aviation pilots fatally injured in alcohol-involved accidents showed evidence of high blood alcohol concentrations (BAC). The mean BAC of the alcohol-involved pilots was 0.15 percent, nearly four times the 0.04 percent BAC intoxication level established by current regulations. The report also showed evidence of certificate violations (pertaining to biennial flight review, medical certificates, and airman certificates), and flying inexperience for the alcohol-involved fatally injured pilots. The study recommended comprehensive State laws pertaining to alcohol and drug use in general aviation and methods to prevent pilots from flying while impaired by alcohol or other drugs.

To date, 19 states have responded to Safety Recommendation A-92-111 and two states have enacted legislation consistent with the recommendation. Other states will consider legislation in 1994. The FAA agreed with Safety Recommendation A-92-107 through -110 to eliminate deficiencies in the Federal Aviation Regulations, establish and promote procedures to report and process toxicological test results, and to develop and disseminate new educational materials promoting intervention to prevent impaired pilots from flying. Private sector organizations and associations are working with FAA and the states to improve test procedures and reporting and to develop educational materials.

Hartzell Propeller Hub, Model HC-B4TN-5DL

On April 19, 1993, a Mitsubishi MU-2B-60, owned by the State of South Dakota, crashed in Zwingle, IA while on approach to the airport at Dubuque, Iowa. The pilot had declared an emergency to air traffic control and reported that the airplane had an engine failure and had lost cabin pressurization. Both pilots and the six passengers, including the Governor of South Dakota, were fatally injured. Investigators determined that one of the four propeller blades from the left engine had separated from the airplane during flight.

Examination of the propeller hub, Hartzell model number HC-B4TN-5DL, indicated that a fatigue crack initiated on the inside diameter surface of the hub and progressed until the propeller blade separated. The fatigue crack is similar to the one found on another Mitsubishi MU-2B-60 that was also equipped with the same model Hartzell propeller hub. The previous hub cracking was found as a result of the Safety Board's investigation of an accident which occurred on September 27, 1991, near Utica, New York. In this accident, a Mitsubishi MU-2B-60 sustained substantial damage and a rapid decompression when the Hartzell propeller blade assembly separated in flight at 19,000 feet. Although resulting vibrations caused considerable control difficulties, the airplane landed successfully with no injuries. The model HC-B4 hub failure resulted from fatigue cracking which originated in the hub bore at the inboard end of the pilot tube.

After the first accident, the Safety Board recommended that the FAA, with the assistance of Hartzell, develop an inspection technique capable of detecting cracks at this location and require that 4-bladed hubs having over 3,000 service hours be inspected for cracking. Based on this initial inspection, the FAA was requested to determine if periodic inspections also are needed. Further, the recommendation requested that the FAA consider expanding the inspections to the similarly designed 3- and 5-bladed Hartzell propeller hubs. Although the FAA stated that it agreed with the intent of these recommendations, it did not believe that a required inspection was necessary because

- 1) this was the first failure that occurred for these designs in millions of safe flight hours,
- 2) a finite element analysis performed by Hartzell indicated that the stress levels are acceptable even with the varying degrees of interference between the pilot and hub and,
- 3) these hubs are required to be magnetic particle inspected when the part is overhauled (recommended by Hartzell every 3,000 service hours).

The Safety Board responded that a magnetic particle inspection of the hubs in question was an inappropriate procedure for detecting cracks in the hub bore when the pilot tubes remain inserted and asked the FAA to reconsider its position, citing the possibility of a catastrophic accident resulting from a similar hub arm failure.

The Safety Board's position on this matter was repeated in a letter to the FAA on March 4, 1993. Shortly after the April, 1993 accident at Zwingie, Iowa, the FAA issued airworthiness directives requiring inspections of the propeller hubs used on Mitsubishi MU-2B-60 airplanes as well as the other Mitsubishi MU-2B airplanes with 4-bladed Hartzell propellers. The Safety Board determined that the fatigue cracking was caused by a reduction in the fatigue resistance of the hub material, probably combined with higher-than-normal loads associated with a mode of vibration referred to as the reactionless mode. The Safety Board also determined that the reactionless mode was not adequately considered during the original certification of the airplane and issued eight recommendations to the FAA as a result of the investigation.

DC-8 Bogie Beam Failure

On August 21, 1992, a McDonnell Douglas DC-87-71F registered to and operated by UPS experienced a failure of the swivel bogie beam assembly in the main landing gear bogie beam while taxiing for takeoff. The Safety Board determined that the failure of the assembly was caused by stress-corrosion cracking which was induced by lack of lubrication of the swivel joint. Review by the Safety Board of the current UPS task card for maintenance of landing gear components revealed no requirements for lubrication of this joint. The task also was omitted from the On Aircraft Maintenance Planning Document (OAMP) which is developed by the aircraft manufacturer for each operator and is the primary basis of an operator's maintenance program. Further investigation determined that since 1969 there has been 22 Service Difficulty Reports of swivel bogie beam failures that were attributed to the lack of lubrication. As a result of this investigation, the Safety Board issued a safety recommendation urging the FAA to require operators to lubricate the main landing gear bogie beam swivel joints at an appropriate interval determined by the FAA. The Safety Board also asked the FAA to require a one-time inspection of the bogie beam components for evidence of corrosion, wear, and stress corrosion cracking.

At the present time the FAA is considering issuing an AD that will require repetitive lubrication of the swivel bogie beam. As an interim measure the FAA issued an Airworthiness Handbook Bulletin that requests that this lubrication instruction be immediately included in the operator's maintenance programs.

Cessna Spin-on Adapters

On June, 18, 1992, a Cessna 207 airplane suffered a total loss of oil pressure followed by a complete loss of engine power. The losses occurred while the airplane was climbing 500 feet (above ground level and mean sea level) after takeoff from Quinhagak, Alaska. After the forced landing, the occupants were not injured, but the airplane was substantially damaged. Investigation by the Safety Board revealed that the Cessna Aircraft Company spin-on type oil filter adapter P/N 1250922 had separated from the oil pump housing, allowing oil to flow out of the engine. The metallurgical investigation of the adapter revealed the adapter-to-oil-pump threads were severely worn along the thread crowns and that many thread fragments had separated from the adapter. Between 1985 and 1992, there were nine reported occurrences in which an adapter separated from the oil pump housing.

As a result of this investigation, the Safety Board asked the FAA to issue an AD to operators of airplanes equipped with engines that use Cessna spin-on oil-type filter adapters (P/N 1250922), or any spin-on adapter of similar design. The AD would require inspections of the adapter-to-oil-pump threads for evidence of damage; verification that the adapter nut is tightened to within the preload torque value range specified in the

Cessna service manual; application of torque putty to the adapter nut that was verified to have the specified torque; and periodic inspections of the integrity of the torque putty each time the oil filter is changed.

The FAA agreed with the Safety Board's recommendations and indicated that it is considering the issuance of a notice of proposed rulemaking to implement the provisions of Cessna Service Bulletin SB93-1, which requires inspections to check the retaining nut for proper torque, perform visual inspection of the oil filter adapter assembly for oil leaks and cracks, and refer to the maintenance manual for repair instructions when such discrepancies are discovered.

Lockheed L-1011 In-Fight Flap Vane Separation

On September 20, 1992, Delta Airlines flight 252, a Lockheed L-1011-385, on a scheduled air carrier domestic flight, experienced an in-flight separation of the right wing vane No. 2 assembly during its final approach to runway 4R, at Logan International Airport, in Boston, Massachusetts. The airplane landed safely and no injuries were reported among the 302 occupants. The vane (dimensions about 10 feet by 2 feet by 6 inches) struck the ground causing no injuries or property damage. Metallurgical examination of the vane disclosed that the inboard end fitting lug had separated as a result of stress cracking followed by fatigue. The stress corrosion emanated from the center of the lug bore, between bushings installed in the upper and lower end of the lug.

As a result of this incident, Delta initiated a special inspection program to examine the end fitting lugs on its fleet of 56 L-1011 airplanes. Of the 22 airplanes inspected as of November 23, 1992, 49 of the 352 end fitting lugs (14 percent) were found to contain cracks or corrosion. Damage to 23 of the 49 lugs was reported to be beyond the repair limits described in Lockheed service bulletin (SB) 093-57-199. As a result of this investigation, the Safety Board issued a recommendation asking the FAA to require inspection of the vane inboard and outboard end fitting lugs for evidence of corrosion and stress corrosion cracking, and depending on the degree of corrosion and cracking found per SB 093-57-199, that they either be modified or replaced. The modification includes reworking the lug bore by machining it oversize and inserting a sleeve. The FAA agreed with the intent of the recommendation and issued a notice of proposed rulemaking, proposing the adoption of an AD to require inspection, modification, or replacement of the flap vane lugs found to have cracks or corrosion.

Boeing 747 Engine Pylon-to-Wing Attachments

On October 5, 1992, EL AL flight 1862, a Boeing 747-200F, crashed into an apartment complex shortly after take off at Amsterdam, The Netherlands. All three crewmembers, one passenger, and 55 persons on the ground were killed in the crash. The accident is

being investigated by the Government of The Netherlands with the assistance of Safety Board investigators. The Flight Data Recorder was sent to the Safety Board's laboratory for examination. The FDR data and examination of the wreckage indicated that the Number 3 engine separated from the airplane and impacted the Number 4 engine. The Number 4 engine subsequently separated from the airplane. The investigation determined that the Number 3 engine separated from the airplane because of a failure of mid-spar pylon attachment fuse pins that secure the engine to the wing.

The circumstances of the accident at Amsterdam were very similar to those of China Airline flight CI-358, a Boeing 747-200F, that crashed shortly after takeoff near Taipei, Taiwan on December 29, 1991. The Safety Board sent an investigative team to Taiwan to assist the Government of Taiwan in the investigation. The investigation determined that the Number 3 engine had separated from the airplane, damaging the leading edge devices of the right wing and causing the Number 4 engine to separate from the airplane. Both engines and their supporting pylon structures fell into the sea. The engines were recovered within about 6 months of the accident. The pylon structure from both engines, including the mid spar fitting area for the Number 3 engine, were recently recovered. As a result of these two accidents the Safety Board issued 4 recommendations to the FAA to require: repetitive inspection of the fuse pins, inspection of wing-to-pylon misalignment before each flight, validation of the wing-to-pylon loads through flight test data, and the installation of newly designed fuse pins. The FAA has since issued an Airworthiness directive that incorporates all of the Board's recommendations. Additionally, Boeing has proposed major structural modifications to the wing-to-pylon mounting structure that will greatly increase the load carrying capability of the structure.

On March 31, 1993, an Evergreen International Airlines Boeing 747-100, leased to JAL, had the Number 2 engine separated from the wing shortly after takeoff from Anchorage, Alaska. Although there was substantial damage to the leading edge of the wing between the Number 1 and Number 2 engine positions, the flightcrew was able to control the airplane and make an uneventful landing. No one on the ground was injured by the falling engine and wing parts. The flightcrew reported that the airplane had encountered severe to extreme turbulence at the time the engine separated. All of the structural components of the pylon assembly were recovered and all of the mid-spar attachment fuse pins were found to be intact. The investigation determined that the pylon mid-spar fittings had been inspected and the fuse pins replaced as required by the Airworthiness Directive mentioned above. A fatigue crack was found in the forward firewall structure. The Safety Board determined that the probable cause of the engine separation from the

Evergreen B-747 was an encounter with severe or possibly extreme turbulence that resulted in dynamic multi-axis lateral loadings. These loadings exceeded the ultimate lateral load-carrying capability of the pylon, which was already reduced by the presence of the fatigue crack near the forward end of the pylon's forward firewall web.

The Safety Board made several recommendations to the FAA, including the inspection of B-747 engine pylons, the potential meteorological hazards to aircraft, an increase in the lateral load carrying capability of engine pylon structures, and the modification of aircraft departure routes at Anchorage International Airport during periods of moderate or severe turbulence.

Orbital Sciences Corporation Pegasus Rocket

On February 9, 1993, an Orbital Sciences Corporation Pegasus Rocket was successfully launched from a NASA Boeing B-52 into outer space. During the final moments prior to the launch, a command destruct receiver on the rocket appeared to have dropped off line. One or more mission supervisors announced an abort of the launch, then another supervisor cancelled the abort order. On July 20, 1993, the Safety Board determined that at the time of the launch there was still considerable confusion as to whether or not the launch was to be aborted. Although the rocket could have been successfully destroyed if necessary, cancellation of the abort call was not in accordance with commercial space launch operating procedures. This investigation was the Safety Board's first involvement in commercial space accident investigation.

Beech Bonanza Empennage Flutter

A review of accidents/incidents involving Beech Bonanza Model 35 series airplanes disclosed that models 35, 35R, A35, and BBB have been involved in a significant number of occurrences involving flutter of the empennage, resulting in extensive damage to the tailcone-empennage area. The flutter is caused by failure to properly rebalance the ruddervators on these V-tail airplanes following repainting and/or structural repairs. As a result, the Safety Board, on March 18, 1993, issued two safety recommendations to the FAA. The first recommended that an AD be issued requiring that the ruddervator balance on these models be checked to ensure that it is within the manufacturers specified limits and that the tailcone-empennage area be inspected for evidence of flutter-related damage. The second recommendation asked the FAA to require the Beech Aircraft Corporation to amend the Pilot Operating Handbooks and Airplane Flight Manuals applicable to these models, by including in "Emergency Procedures" information regarding potential empennage flutter. The Safety Board also issued a third recommendation to the Beech Aircraft Corporation recommending that a "Safety Communique" be issued regarding empennage flutter.

Traffic Alert and Collision Avoidance System (TCAS) Training for Flightcrews and Air Traffic Controllers

On March 25, 1993, following a review of TCAS incidents which strongly suggested that TCAS training standards were inadequate, the Safety Board recommended that the FAA require TCAS flight simulator training for flight crews. Under current FAA standards, TCAS simulator training is not required for commercial airline flightcrews because there is no requirement for compliance. In addition, the Safety Board recommended that the FAA provide the air traffic control workforce with a thorough and comprehensive program to explain the operational factors and characteristics of TCAS so that controllers, when performing their duties, will be aware of those situations in which TCAS may provide flightcrews with an advisory or alert. Finally, the Safety Board recommended that the FAA amend current regulations to include TCAS resolution levels and sensitivity levels as mandatory recording parameters for future flight data recorders (FDR) and also to current FDR installations that have recording capacity.

In a June 4, 1993, response, the FAA agreed to conduct an audit of air carriers to determine current TCAS simulator training, and to base any further action on the findings of the audit. The FAA also has developed a videotape on "Air Traffic Control and TCAS" as part of a mandatory briefing to be given to all air traffic controllers and facility TCAS coordinators. Two versions of the tape were developed to address the individual training requirements at Enroute and Terminal/TRACON ATC facilities. However, the FAA did not agree that resolution advisories and sensitivity levels should be mandatory FDR parameters, citing the limited capacity of the FDR to record the warnings. The Safety Board's position has not changed regarding the addition of TCAS data to the FDR mandatory parameter list.

Boeing 737 Aileron Cable Failure

On March 15, 1993, immediately after departure from Newark, New Jersey, a Continental Airlines Boeing 737-100 airplane experienced a broken left aileron "down" cable resulting in the full upward deployment of the left aileron and control difficulties. The airplane was able to return safely to Newark. The Safety Board investigation of the incident revealed that the failed cable was severely worn and that similar severe wear and a substantial reduction of cable cross sectional area existed on the adjacent aileron "up" cable. The applicable inspection requirements are directed primarily at identification of broken wire strands, rather than for evidence of severe wear that could cause cable failure. Boeing requires B737 operators to replace cables on an "on condition basis," or upon failing the broken wire inspection. The Safety Board is working with Boeing and Continental Airlines to develop improved inspection criteria and to evaluate whether cable life limitations would be appropriate.

DC-9/MD-80 Control Cable Icing

As a result of the Safety Board's participation in a Canadian Transportation Safety Board investigation, a recommendation was issued to the FAA calling for the installation of a water drain system on DC-9, C-9, and MD-80 series airplanes to prevent water accumulation and freezing of aileron control cables in flight. This recommendation was prompted by an incident involving an Air Canada DC-9 that experienced frozen aileron controls. Although the airplane landed without incident, attempts to free the aileron cables while airborne were unsuccessful. Tests showed that water had leaked into the airplane and collected on the aileron cables after the airplane was pressurized. The temperatures encountered during any extended flight are sufficient to freeze the water on the cables and present a potential control problem. The FAA advised the Safety Board that it agrees with the intent of the recommendation and is considering issuance of an airworthiness directive to address this issue.

MD-11 and DC-10 Tail Strikes

On August 2, 1992, a McDonnell Douglas MD-11 sustained damage to the underside of the aft fuselage as a result of contact with the runway during a landing in Los Angeles when improper pilot control inputs caused the nose of the airplane to pitch upward excessively. The investigation disclosed other incidents involving DC-10 and MD-11 airplanes, causing concern that so many events have occurred and that the airplanes could be substantially damaged without the flightcrew's knowledge. As a result, the Safety Board issued recommendations to the FAA to assure notification of operators and foreign airworthiness authorities of the ground spoiler-induced pitch-up tendencies of these airplanes, and to require McDonnell Douglas and airlines to revise their Flightcrew Operating Manuals, or equivalent documents, to specify the pilot control techniques that may be required to counter those tendencies during landing. The recommendations also urged McDonnell Douglas to study possible revision to the DC-10 and MD-11 ground spoiler deployment logic to reduce the possibility of tail strike incidents and to develop and install a positive tailstrike indication system. The Board is currently evaluating the FAA's response.

RAILROADHours-of-Work/Human Fatigue*

The Safety Board has found in accident after accident that workload and work/rest issues have been critical factors. The Safety Board has completed a review of its investigations

of 12 accidents which occurred between 1987 and 1991 that involved railroad employees' inattention because of fatigue or even sleeping while on duty. All 12 accidents occurred under and in compliance with the Hours of Service Act.

As a result of rail accidents in Sugar Valley, Georgia, and Corona, California, in 1990 in which fatigue was a key issue, the Safety Board concluded that workload issues will become even more prevalent in the future. Ultimately, action by Congress may be needed to address changes in the Hours of Service Act. The Safety Board has addressed several key areas in recommendations to the railroads that effect railroad employees covered by the Hours of Service Act. The areas are: 1) chronic and acute fatigue; 2) education and counseling programs on health and diet; and 3) methods of avoiding sleep deficits and sleep deprivation. In order for the Federal Railroad Administration to address issues concerning hours of service and work/rest cycles, Congress must amend the Act.

A task force has been established within the railroad industry to discuss the Hours of Service Act and to determine what type of modification could be made to the act to successfully address the fatigue problem without being unfair to railroad companies or railroad labor. Other smaller task forces involving railroad management and labor have been established to address fatigue and Hours of Service problems on a local level. The Safety Board is firmly convinced that transportation safety should be the motivating factor in any decision concerning hours of service, work/rest and human fatigue, controlled by the Hours of Service Act.

A Safety Board analysis found no differences in the pattern of irregular work schedules of accident-involved and non-accident involved engineers. Following analysis of detailed work/rest schedule information obtained on 114 accident involved truck drivers, in a different study, the Board will determine whether to undertake a safety study to examine the role of irregular work hours in railroad accidents.

Safety Oversight of Rapid Transit Systems

In 1991, the Safety Board issued its safety study, "Oversight of Rail Rapid Transit Safety." Although rail rapid transit is generally a safe form of transportation, the potential exists for a catastrophic loss of life in the event of a collision, derailment, fire, or other emergency involving the evacuation of passengers. Further, the Board determined as a result of its study that detecting and analyzing accident trends of rail rapid transit is difficult because of inadequate data collection and analysis. Consequently, the Board urged the Federal Transit Administration (FTA), formerly the Urban Mass Transportation Administration, to develop an improved accident/incident reporting form.

In its study, the Safety Board concluded that the primary responsibility for oversight of rail rapid transit safety properly resides with the state and local governments in which the systems operate. Existing state oversight programs, however, vary greatly in their effectiveness and scope. The Board further concluded that the Federal government, through the FTA, does have a role in assuring that this oversight responsibility is met. The FTA should develop guidelines that can be used by state and local authorities. Consequently, the Safety Board urged all states in which rail rapid transit systems currently are operating to develop or revise, as needed, existing programs to provide for continual and effective oversight of rail rapid transit safety. The Board concurrently urged the FTA to develop guidelines that address the critical elements of an effective oversight program.

Section 28 of the Federal Transit Act, as amended, directed the FTA to issue a rule requiring states to oversee the safety of rail fixed guideway public transportation systems not regulated by the FRA. On June 25, 1992, the FTA published an Advance Notice of Proposed Rulemaking (ANPRM), "Rail Fixed Guideway Public Systems; State Safety Oversight." On August 20, 1992, the Safety Board commented in detail on the ANPRM stating that it supported the intent of Section 28 of the Federal Transit Act. The Safety Board also encouraged the FTA to proceed in its rulemaking activity with that goal in mind. The Safety Board was informed by FTA staff on May 14, 1993, that the FTA was expecting to issue an NPRM on this issue within the next month. As of July 24, 1993, the NPRM had not been issued. The Safety Board is concerned with the slow pace at which this rulemaking is proceeding, and will follow up with the FTA to determine the reasons for the delay in issuing the rulemaking.

Locomotive Crashworthiness

Since 1970, the Safety Board has pursued, as a priority item, the goal of increasing the protection of on-board locomotive crewmembers by improving the crashworthiness of locomotives. In 1989, members of the Association of American Railroads adopted Rule S-580, to be effective August 1990, for all new locomotive units built for use in the United States. Rule S-580 specifies design requirements for the structural strength of locomotives including collision posts and longitudinal strength. With the subsequent concurrence of the Federal Railroad Administration (FRA), all new road freight and passenger locomotives must be equipped with antilockers to prevent one locomotive unit from overriding another, increased sheathing to resist penetration, and stronger collision posts to control and deflect collision forces with other locomotive units and equipment. However, until now, all standards including S-580 have been empirically derived. Without a scientific engineering approach, this has left questions regarding the sufficiency of standards and adequacy of crew protection. The FRA has begun a systematic evaluation of locomotive crashworthiness at the urging of the Safety Board and railroad unions which includes the issuance of instructions and data collection sheets to all field inspectors for locomotive body and cab damage, and any injury and death attributed to

locomotive design for all derailments and collisions. In addition, the FRA Office of Research and Development is in the process of selecting a contractor for evaluation of the data collected by the field inspectors and has contracted to examine and evaluate new locomotives built under AAR standard S-580 for possible improvements.

Continuous Welded Rail

Currently no Federal standards exist specifically for continuous welded rail (CWR). On March 29, 1982, the Safety Board sent a letter to the FRA, in response to a NPRM, "Track Safety Standards; Miscellaneous Amendments", which was published on February 18, 1982. A portion of the letter addressed the proposal to drop Section 213.119, Continuous Welded Rail from the FRA track safety standards which read:

49 CFR Part 213.119 continuous welded rail.

(a) When continuous welded rail is being installed, it must be installed at, or adjusted for, a rail temperature range that should not result in compressive or tensile forces that will produce lateral displacement of the track, or pulling apart of rail ends or welds.

(b) After continuous welded rail has been installed, it should not be disturbed at rail temperatures higher than its installation or adjusted installation temperature.

The Safety Board responded in part by stating that this section should be retained, strengthened, and enforced because rail temperature is an important safety consideration. Even the subject rulemaking proposal acknowledges the importance of controlling thermal stress in continuous welded rail; but fails to propose action for accomplishing needed controls.

The FRA removed the CWR section in 1982 because it believed that the individual railroads already had adequate rules and practices in place to insure a safe CWR track structure, and that since there was no accurate means to measure longitudinal rail force, such regulation was unenforceable.

In the investigation of the derailment of an Amtrak train at Batavia, Iowa in 1990, the Safety Board re-addressed the importance of temperature control of CWR and its ability to absorb the dynamic forces of trains in order that railroad operations may be conducted safely. Although much information has been developed from the research of the behavior of CWR, much of the present knowledge about track structure capabilities and limitations is still empirical because of the wide variety of factors that affect neutral rail temperature such as ambient temperature, location, maintenance, and rail traffic. Standards relating to track structure should include a safety margin sufficient to reflect the inability to predict,

with reasonable accuracy, the effects of operating conditions upon safety. The Safety Board believes that the FRA should reinstate and expand Section 213.119 to ensure proper temperature control procedures for installing and maintaining CWR.

Congress has recognized the need for improvements in railroad safety. The "Rail Safety Enforcement and Review Act" (PL 102-365) legislation was passed September 3, 1990. This required that the FRA initiate a review of the track safety standards, and as a minimum, include an evaluation of the procedures associated with installation and maintenance of continuous welded rail.

On November 16, 1992, the FRA issued an advanced notice of proposed rulemaking (ANPRM) to address proposed revisions to the track safety standards. On January 28, 1993, the FRA conducted a workshop in Atlanta, Georgia and participants offered comments and discussed continuous welded rail and lateral track resistance. The FRA used the workshop forum to obtain information about whether the present Track Safety Standards are adequate. The FRA is also continuing to test devices that measure longitudinal rail forces at the Transportation Test Center in Pueblo, Colorado.

Grade Crossing Safety

Starting in 1993, the Safety Board has changed its approach to grade crossing accident investigation. The Safety Board now launches a multi-modal team to grade crossing accidents to allow issue identification from a broader perspective. Highway and rail technical specialists are dispatched as a joint investigation team. This approach was developed because issues identified at crossing accidents often involve both modes. Highway investigators cover the vehicle, driver, and highway. Railroad operation and equipment features, including risks to railroad employees and passengers (crashworthiness), are addressed by rail investigators. The first major multi-modal accident investigation of this type began with the March 17, 1993, Fort Lauderdale, Florida, collision between Amtrak Train 91 and an Amerada Hess Gasoline Truck that killed six and injured nineteen. A second major multimodal launch was made to Intercession City, Florida on November 30, 1993, to investigate a grade crossing collision between an Amtrak Passenger Train and a flat bed truck carrying an electrical transformer. About 65 people were injured in this accident.

The Board also is planning to conduct a safety study that will examine issues such as passive crossings, adequate sight distances, and proper roadway alignment (see description under Safety Studies).

Toxicological Testing

Previous recommendations that resulted from a Safety Board study on "Alcohol/Drug Use and Its Impact on Railroad Safety" requested that the FRA expand its regulations to require post-accident drug and alcohol testing of all employees in safety sensitive positions that are reasonably associated with the accident. The Safety Board continues to believe that maintenance-of-way employees, maintenance-of-equipment employees, supervisors, and others in safety-sensitive positions on the railroad should be included in post-accident toxicological testing.

Railroad Event Recorders

The Safety Board has long supported actions to mandate event recorders on locomotives within the FRA's jurisdiction. In July 1978, the Safety Board issued a safety recommendation to the FRA promoting the installation of event recorders in locomotives.

In November 1988, the FRA issued an ANPRM concerning the need for event recorders and the status of event recorder technology in response to the Rail Safety Improvement Act of 1988 that directed the FRA to issue rules and regulations requiring the installation and use of event recorders by January 22, 1990. The FRA issued a subsequent NPRM on June 18, 1991. A final rule on event recorders was issued by the FRA on July 8, 1993. The rule which went into effect on November 5, 1993, requires that, 18 months after the effective date of the rule (May 5, 1995), all trains operating at speeds in excess of 30 mph be equipped with an event recorder in the lead locomotive.

Locomotive Fuel Tank Integrity

During the course of its railroad accident investigations, the Safety Board has observed many instances of locomotive fuel tanks that ruptured during collisions. Little significance was attributed to this occurrence because diesel fuel spills rarely resulted in serious injury. However, accidents in Sugar Valley, GA, and Corona, CA, in 1990 revealed that five of the six fatally injured crewmembers suffered extensive burns and smoke inhalation. These accidents heightened the Safety Board's concern about the potential for diesel fuel fires in railroad accidents to fatally injure trapped crewmembers, consume cargo, contribute to hazardous materials fires in the train, and endanger non-railroad property near the accident site.

The study found that, in the 29 locomotive derailment accidents investigated by the Board in 1991, diesel fuel spills occurred from 47 (56 percent) of the 83 locomotives that derailed. Further, fuel ignition occurred on 23 (28 percent) of the 83 locomotives that derailed. The Board recommended that research be conducted by the FRA, the AAR, and the locomotive manufacturers to determine if the locomotive fuel tank can be

improved to withstand forces encountered in the more severe locomotive derailment accidents, or if fuel containment can be improved to reduce the rate of fuel leakage and fuel ignition.

In response to the Board's recommendations, the FRA, the AAR, and the locomotive manufacturers met in February 1993 to discuss the issue of improving the integrity of locomotive fuel tanks. The FRA and the AAR intend to collect data on fuel tank damage and fuel tank spills. The locomotive manufacturers are planning to provide an engineering analysis of locomotive fuel tanks. The Safety Board recognizes the scope of this data collection and engineering analysis, and the Board will continue to monitor the actions of the FRA, the AAR, and the locomotive manufacturers on this issue.

HIGHWAY

Heavy Truck Wheel Runaway Accidents

As a result of Congressional interest, the Safety Board initiated a special investigation on runaway truck wheel accidents based on 5 accidents involving 6 fatalities. The investigative which report was completed in the summer of 1992, concluded that although the problem is relatively small, the consequences can typically be avoided by proper wheel installation and maintenance.

Recommendations were made to vehicle and component manufacturers for the development of proper guidelines and training for wheel tightening and bearing maintenance, and to the Department of Transportation for the separation of wheel incidents from tires in highway accident data bases. These recommendations were received and actions are being implemented. The Safety Board will monitor responses to these recommendations to determine their adequacy.

Adequacy of Passive Restraints

The Safety Board is completing its investigations of accidents in which the Board examined the crash performance of passive restraints. After the 1990 model year, all new passenger cars sold in the United States were required to have passive crash protection for front seat occupants, manufacturers either installed air bags or automatic safety belts. The Board investigated 56 accidents that occurred between February 1990 and April 1992 involving late-model automobiles where at least one vehicle in the crash was equipped with a passive restraint system.

The data indicates that the combination of an air bag and a manual lap/shoulder belt perform well in saving lives and reducing upper torso and head injuries. However, many occupants in air bag-equipped-vehicles did not wear the manual belt systems, thereby reducing the effectiveness of the air bag. Further, many occupants did not use the manual lap belts in vehicles equipped with automatic shoulder belts and manual lap belts. The results of these investigations will be available in early 1994.

Motor Carrier Oversight

In July 1992, the Safety Board investigated an intercity bus accident in Vernon, New Jersey. The driver of a charter bus traveling from Brooklyn, New York, to Vernon, New Jersey, lost control of the bus as it descended a steep hill. Six passengers died as a result of this accident. The Safety Board's investigation revealed that although the Interstate Commerce Commission (ICC) had authorized this carrier to operate in interstate passenger service, the Federal Highway Administration (FHWA), Office of Motor Carriers was unaware of this carrier's existence. During the investigation the Safety Board conducted a comparison review of the ICC and FHWA carrier census information and discovered that many of the ICC authorized carriers were unknown to the FHWA. Because of this, the FHWA was unable to provide all carriers with the scrutiny necessary to assure safe operations. In April 1993, the FHWA indicated that they had corrected the discrepancies between the ICC census information and their own. However, since the ICC census encompasses only about 20 percent of the total carrier population subject to FHWA oversight, and because the mechanisms for motor carrier identification within FHWA have not significantly changed, the Safety Board remains concerned that the FHWA is unable to identify all carriers. Without timely identification, the FHWA cannot assure the safety oversight of all carriers. The Vernon investigation report was adopted in June 1993, and appropriate recommendations were sent to the FHWA to address this issue. The Safety Board currently is awaiting a response from FHWA regarding these recommendations.

Intercity Bus Safety

In 1992, the Safety Board investigated six accidents involving primarily large (over 26,000 pounds gross weight) intercity buses. The accidents resulted in 10 fatal and 164 injuries of varying degrees. The accidents highlighted several recurrent safety issues, specifically the crashworthiness of buses, occupant ejections, overhead parcel rack separations, drivers performance (fatigue and drug impairment), and carriers oversight. Although these accidents represent the more severe crashes involving intercity (charter) buses, they do address relevant safety problems, particularly since large buses are increasingly being used by both public/private schools for activity trips, and by social organizations for transportation.

The Safety Board may consider conducting a special investigation which focuses on the dominant issues identified in the 1992 bus accidents; driver performance and vehicle crashworthiness. Approximately 20-25 accidents would be investigated to determine the scope of these problems and the appropriate countermeasures that would be needed to address these issues. The accidents could be investigated without significantly impacting our ability to support majors or other safety study projects.

"Specialty Bus" Safety

The September 1993, Winslow Township, New Jersey senior citizen bus crash investigation again raised concerns about the general crashworthiness of small buses (under 26,000 pounds gross weight) certified by second stage manufacturers. Preliminary results indicated that four passengers were fatally injured primarily because of inadequate occupant restraint/seat protection. These buses are utilized in a variety of functions including school pupil transportation, airport passenger shuttle, transport of disabled persons, prisoner transport, corporate transport, and other specialty purposes.

The Safety Board would like to investigate crashes of moderate or greater severity involving small buses to assess a number of crashworthiness issues which includes: General body structural crashworthiness, particularly during side impacts or rollovers; performance of restraint systems and their anchorages (if installed); the performance of seat structures; the adequacy of emergency exits; overhead luggage compartments, wheelchair securement, and passenger compartment flammability.

Highway Bridge Vulnerability

In May 1993, a tractor bulk-semitrailer, traveled off of an Interstate highway near Evergreen, Alabama, and collided with a overpass bridge pier. As a result, the pier and two overpass spans collapsed onto the highway, killing 3 persons. The bridge pier was not designed to withstand significant lateral loads and was located only a few feet from the roadway. Also in May 1993, a tow boat pushing an empty hopper barge collided with an unprotected highway bridge pier in the inner harbor navigational canal in New Orleans, Louisiana. As a result, the pier and two bridge spans collapsed into the canal, and killing 2 persons. This bridge pier also was also not designed to withstand significant lateral loads, and over time became vulnerable to ship traffic because of waterway changes in the approach to the canal.

In October 1993, the Safety Board conducted a public hearing in New Orleans, Louisiana to explore the issues of bridge pier protection and vulnerability. In February 1991, the American Association of State Highway and Transportation Officials issued a guide specification for vessel collision design of highway bridges; however, most States have not yet begun to use the guide or assess the vulnerability of their bridges to collisions with

ships or heavy commercial vehicles. The Safety Board will develop recommendations to address the complex issue of bridge pier vulnerability and protection in these reports which are scheduled to be completed early in 1994.

Commercial Drivers License

The Safety Board believes that the implementation of the Federal Commercial Drivers License (CDL) requirements has upgraded the fundamental knowledge base for commercial truck and bus drivers. Additionally, the CDL has reduced the number of unqualified and reckless commercial vehicle drivers on the highway. In November 1993, the Safety Board investigated a tractor semi-trailer and school bus collision in Snyder, Oklahoma. As a result of this accident, four school children and the bus driver were killed. The Safety Board found that although the truck driver had a current Oklahoma CDL, his Texas drivers license had been revoked, and his driving record included many convictions for traffic offenses.

The Safety Board intends to monitor the effectiveness of the CDL to assure that proper scrutiny of new and existing commercial vehicle drivers continues.

North American Free Trade Agreement

The implementation of the North American Free Trade Agreement (NAFTA) will dramatically increase the volume of foreign commercial vehicle traffic on the nations public roadways. Public confidence and variations in safety regulations and requirements between Canada, Mexico, and the United States will be the focal point of the Safety Board's safety oversight of NAFTA. The Board intends to monitor the Department of Transportation development of cooperative agreements, compatibility of regulations, and other transportation safety related activities as they relate to NAFTA. Also, it will investigate any catastrophic highway accident involving a foreign motor carrier to assess the safety effectiveness of the NAFTA agreements.

MARINE

Liftboat Safety

Liftboats are self-propelled vessels with features of both conventional offshore supply vessels (OSVs) and self-elevating mobile offshore drilling units (MODU). Casualty figures for a three-year period showed that 5.6 percent of the fleet of about 250 liftboats was involved in sinking or capsizing; and the casualty rate for liftboats is eleven times greater

than that of traditional OSVs. From 1980 to 1987 approximately 18 percent of the liftboat fleet was involved in an accident or casualty involving major damage or loss of life. Of 57 casualties during the period, 10 lives were lost, 33 persons were injured, and liftboat damage costs alone exceeded \$20 million.

The Coast Guard had been inspecting liftboats under either the regulations pertaining to "Cargo and Miscellaneous Vessels" or those pertaining to "Small Passenger Vessels." In 1980, the Coast Guard published rules requiring previously uninspected OSVs to be registered with an Officer In Charge of Marine Inspection before January 7, 1982, and to be certificated within two years of registration. In August 1988, because of the similarities of liftboat and conventional OSV operations, the rulemaking projects for liftboats and OSVs were combined, and the comment period was extended until October 31, 1989. The proposed Final Rules have been drafted and are undergoing final review.

In 1989, the Safety Board investigated two liftboat accidents (M/V TITAN and M/V AVCO V), which together resulted in the loss of 13 lives. The Safety Board is concerned about the safety of offshore workers being transported as passengers aboard liftboats insofar as liftboats are not designed for passenger vessel service. The Safety Board issued 35 safety recommendations in connection with both of these liftboat accidents. The response to recommendations dealing with material and operational features concerning liftboats has been positive. However, the Board continues to be concerned about the numbers and safety of offshore workers or persons in addition to the crew that may be transported aboard liftboats.

The Safety Board takes exception to the Coast Guard's rulemaking proposal to create the term "offshore workers" and limiting the number of persons carried to not more than 36. This violates the statutory limits of carrying not more than 16 persons in addition to the crew on domestic voyages and not more than 12 passengers on foreign voyages.

Crew Manning and Fatigue*

In every accident investigation, emphasis is directed toward examining all elements of human performance, especially fatigue. The most significant marine accident involving fatigue by operating personnel was the March 1989 grounding of the EXXON VALDEZ in the Prince William Sound, Alaska. In that accident, the Safety Board found that the navigation watch officer failed to maneuver the vessel properly because of fatigue and excessive workload. This particular watch officer had voluntarily remained on duty beyond his normal watch in order to give the officer scheduled to relieve him additional time to rest, because that officer was fatigued. Another case investigated by the Safety Board where fatigue was a causal factor was the grounding of the Greek tankship WORLD PRODIGY in Buzzards Bay near the coast of Rhode Island on June 23, 1989. In that accident the vessel's master had been on the bridge for approximately 36 hours with virtually no rest, because the vessel had encountered fog and vessel traffic as it

approached the East Coast of the U.S. The Safety Board found that the cause of the grounding was the master's impaired judgment from acute fatigue, which led to his decisions to decrease the navigation watch and to involve himself in non-essential tasks during a crucial period in the ship's navigation.

The investigation of the capsizing and sinking of the U.S. fish processing vessel ALEUTIAN ENTERPRISE on March 22, 1990, revealed that many of the crew suffered from fatigue, particularly the processing personnel who worked very long hours often foregoing meals to acquire needed sleep. The Safety Board again called attention to the potential deleterious effects of long-term sleep loss. Although there were no indications that sleep loss contributed to this accident, the Safety Board continues to have serious concerns about the far-reaching effect of long work hours and resulting fatigue such as existed on board this U.S. fish processing vessel.

The Safety Board will continue to give high priority to investigating accidents where fatigue could be a causal factor. The Board also will monitor the application of existing laws, regulations, and company operating practices related to manning and hours of work to determine if they ensure that crewmembers receive proper rest.

Large Vessel Maneuvering in Harbors and Channels

Large vessels that transit the entrance channels to ports and harbors in relatively shallow water become less maneuverable because of their proximity to the bottom and the sides of the channel. Transit through shallow water creates forces that oppose those of the ship's rudder and degrade the controllability of the vessel. Because of the increase in size of present day vessels, the hydrodynamic forces generated also are significantly increased. Shallow water phenomena are often difficult to predict. As a result, the risk of groundings and collisions and consequent fire and pollution effects have increased.

The Safety Board has addressed these matters in a number of accident reports and has made recommendations to the Coast Guard and pilot associations pointing out that modern simulator training can supplement the traditional hands-on type of training, particularly where training in hydrodynamic interaction is lacking.

An accident that occurred in the Houston Ship Channel in 1990 was the result of a meeting situation followed by a loss of control of one of the vessels, the Greek tankship SHINOUSSA, due to forces created by bank suction and ship interactions. The subsequent collision with a multiple barge tow resulted in major pollution. Again the narrow confines of the waterway, vessel size and vessel speed were factors contributing to the loss of control of the vessel.

In August, 1992, one of the largest passenger vessels in the international cruising fleet, the British registered QUEEN ELIZABETH 2, grounded while departing Vineyard Sound, a waterway on the north coast of Martha's Vineyard, Massachusetts. One of the major issues in the investigation was the squat (decrease in under-keel clearance) and shallow water effects due to the speed and draft of the vessel which contributed to the severity of the damage.

In August, 1993, the BALSA 37, a Philippine registered bulk carrier, collided with two ocean-going tank barges in Tampa Bay, Florida. Two of the vessels were under the guidance of Florida State pilots while the third vessel was under the command of a Federal pilot. The collision resulted in a fire and explosion aboard one barge and a rupture in a cargo tank of the second barge causing a major oil spill that polluted nearby beaches. A major issue in the investigation was to determine if adequate room existed for 3 large vessels to meet/overtake in a bend in the channel under typical navigating conditions.

There is no single answer to the problem of ship accidents induced by degraded maneuverability. Often the solutions need to be tailored to the characteristics of the waterway. The Safety Board will continue to investigate these types of accidents to find the most effective solutions that will protect our ports and waterways.

Bridge Resource Management

Accidents investigated by the Safety Board, as well as studies conducted by the International Chamber of Shipping, the International Maritime Organization (IMO), and the Coast Guard have identified human error as the primary causal factor in more than 75 percent of all marine accidents. Specifically, many of the ramblings, groundings, collisions, and other marine casualties were attributable to a common core of problems which include the failure of the members of the bridge team to: 1) properly plan, execute, and monitor their vessel's navigation; 2) establish clear lines of communication between members of the bridge team; 3) properly assign tasks and delegate responsibilities; and 4) effectively utilize all resources, including equipment, personnel, and information available to them.

Several U.S. shipping companies, government agencies, and industry training institutions have undertaken pioneering efforts to determine how accidents caused by human error can be prevented. The result of their efforts was the development of training commonly referred to as Bridge Resource Management (BRM) Training.

BRM shares similar basic principles with Cockpit Resource Management, which has enjoyed great success in the aviation industry. The purpose of BRM is to instill in mariners behaviors to ensure the effective use of all available resources to prevent accidents that can occur as a result of human error. Bridge resource management

training, which easily could be applied to both civilian and military bridge watchstanders, including masters and commanding officers, was developed to provide bridge watchstanders, who frequently operate under high workload/high stress conditions, with strategies for accomplishing their tasks in a coordinated, efficient, and controlled manner. It is a course of study intended to provide the industry with an understanding of the complexities of the human element in shipboard operations. Above all else, such training, through a series of classroom lectures and simulator-based training, stresses techniques for team-building so that bridge watchstanders are not only better prepared to meet the everyday demands of the job, but also are better prepared to respond to unexpected events. Because shipowners are becoming increasingly aware of human error as a cause of accidents and because BRM training, designed to reduce the occurrence of human error, utilizes many common sense principles that have been in use in various segments of the maritime industry for many years (but not always uniformly applied), such training is gaining credibility within the industry.

As a result of its investigations of the groundings of the WORLD PRODIGY, the U.S. tankship STAR CONNECTICUT and the QUEEN ELIZABETH 2, the Safety Board determined that many of the principles incorporated into BRM training probably could have prevented each of these accidents. Following the Board's investigation of the WORLD PRODIGY and STAR CONNECTICUT groundings, the Safety Board recommended to the Coast Guard that BRM training be required for all deck officers aboard U.S. flag vessels of more than 1,600 gross tons. Also because the WORLD PRODIGY and the QUEEN ELIZABETH groundings involved foreign flag vessels, it was recommended that the Coast Guard propose to the IMO that the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW) be amended to require BRM training for foreign deck officers as well. The QUEEN ELIZABETH 2 report went one step further by recommending that masters and deck officers aboard vessels be required to successfully complete initial and recurrent training in BRM. This training of foreign deck officers in BRM is of particular concern to the Safety Board because of the fact that more than 96 percent of our nation's international commerce is carried in and out of our ports and waterways aboard foreign flag vessels.

Presently, neither Coast Guard regulations nor the provisions contained in the STCW require BRM training for applicants seeking an original, upgrade, or renewal of a deck license. Because human error continues to be the primary cause of marine accidents and because such accidents continue to occur too frequently, the Safety Board will continue to focus on this significant safety issue in its marine accident investigations.

Tank Ship Safety

Tank ship accidents continue to concern the Safety Board. Accidents involving the JUPITER, SURF CITY, and most recently the OMI CHARGER, which is currently under

investigation by the Safety Board resulted in explosions and fires. The first two accidents involved cargo spills in which the spilled cargo was consumed in the ensuing fire, while the third occurred on an 'empty' vessel.

The investigation of the JUPITER revealed causal elements in the areas of training and judgement, such as decisions regarding overtaking and meeting other vessels in a narrow waterway, and passing close abeam a moored vessel. The SURF CITY accident investigation uncovered causal factors such as the proper ventilation of tanks, tank atmospheric testing, and the effects of operational stresses on the tank ship's structural integrity.

The Safety Board has made recommendations to shipping companies, national agencies, and international organizations concerning the routing of ballast piping through cargo tanks, the inclusion of ballast tanks and void spaces within the cargo block in the inert gas system, and changes to the tank entry procedures.

With tank ship accidents continuing to occur on the navigable waters of the United States from a wide variety of causal factors, the Safety Board will continue to give a high priority to investigating such accidents and working to improve the safety of all tank ships.

Inland Towing Safety

In September 1993, the Safety Board investigated an inland towboat and tow ramming of a fixed railroad bridge over a navigable waterway near Mobile, Alabama. The towboat operator became lost/confused in dense fog and struck a railroad bridge in a side channel (the Big Bayou Canot), off of the Mobile River, that is not used for navigation. The bridge received only minimal damage, but the contact between the barges and the bridge shifted the track enough to cause the Amtrak Sunset Limited train to strike the east girder of the through girder span, derail, and plunge into the Big Bayou Canot. Forty passengers and seven crewmembers died in the accident. The Safety Board's investigation is ongoing, but has revealed that changes are needed in both railroad and towboat equipment, accident reporting, and possible changes in towboat operator qualifications and training, particularly in the use of radar.

In May 1993, the Safety Board investigated another inland towboat and tow that struck the Judge Seeber Bridge (lift bridge) in New Orleans, Louisiana. The barge drifted into an unprotected bridge pier near to the river bank and the 145-foot land approach span collapsed. One person was killed and two were severely injured. The Safety Board's investigation is ongoing, but has revealed that bridge pier protection and side impact standards need improvement.

rior to 1993, the last major accident investigated by the Safety Board involving an inland towing vessel and a bridge was in 1984 (ERIN MARIE and tow ramming of the Poplar Street Bridge in St. Louis, Missouri). However, there have been numerous accidents involving bridges, but without the catastrophic results of these recent accidents.

These recent accidents have caused the Safety Board to reexamine the problem of inland towing vessels operating through bridges in the navigable waterways of this nation and bridge vulnerability to errant waterborne traffic.

PIPELINE

Cast Iron Pipe Replacement

On August 29, 1990, a natural gas explosion and fire destroyed two row houses and damaged two adjacent houses and three parked cars in Allentown, Pennsylvania. One person was killed, and nine people, including two fire fighters, were injured. The Board's investigation disclosed that water eroded the soil foundation beneath the 4-inch-diameter cast iron gas main. This caused the pipe to crack circumferentially, releasing gas that then migrated into the basement of an adjacent building where it ignited, exploded, and burned. Post-accident metallurgical examination revealed that the cast iron main, which had been installed in 1903, was significantly weakened by graphitic corrosion.

The Safety Board has found in its investigations that most gas operators do not submit failed segments of cast iron pipe for laboratory analysis to determine the extent to which the pipe has been weakened by graphitic corrosion. Most often, they have done little more than require a mechanical check of the pipe to determine if it could be damaged easily, an indication of severe graphitic corrosion damage, and to then install a leak clamp around the crack to keep the pipe in operation. Gas pipeline operators' cast iron replacement policies, for the most part, have been to replace cast iron pipe within a city block after a main has experienced three breaks or to replace the mains within a street intersection after they experienced two breaks.

The Safety Board had determined previously that industry practices were inadequate to identify and remove from service gas mains that threaten public safety. This is because these practices do not generally include consideration of previous graphitization, corrosiveness of the soil, bending strength of cast iron pipe (especially those that are 8-inch-diameter and smaller), leak history, and potential pipe damage in areas being renovated or otherwise subjected to major adjacent excavation operations. In its 1986 report on a natural gas accident at Derby, Connecticut, on December 6, 1985, that killed six people and injured 12 others, the Safety Board addressed the need for effective, programmed replacement of cast iron gas mains. In that report, the Board acknowledged

that, much like the gas industry, it had previously treated the cast iron pipe failures on a case-by-case basis with recommendations for corrective action being made only to the gas operator. The Board also found that the amount of cast iron pipe in gas distribution service had decreased over the years while the number of reportable accidents had remained relatively constant, indicating that the number of leaks per mile of cast iron main was increasing. The Board acknowledged that some operators of large distribution systems had already begun collecting the data needed to identify cast iron systems most prone to failure and had established replacement programs. However, most operators had not and there was no guidance to assist or encourage them to develop cast iron replacement practices. The Board concluded that it was time for the industry to begin phasing out cast iron piping systems, many of which had served the public for more than 100 years.

In the years since the Board's report, only limited industry action has been taken to encourage the replacement of deteriorated and aging cast iron gas distribution systems. In 1986, the Gas Research Institute issued its report, "Cast Iron Maintenance Optimization System," to provide gas operators with an evaluation model for deciding whether to repair or replace cast iron pipe. This computerized model provides an analytical tool that could assist operators in estimating the probability of breaks and leaks on individual segments of cast iron gas mains, evaluating repair versus replace options, and identifying replacement priorities. The Safety Board understands that the AGA Gas Piping Technology Committee has recently completed its guidelines to assist gas operators on developing cast iron replacement policies.

The Safety Board is pleased that the gas industry now has an analytical tool and guidelines to aid gas operators in establishing cast iron system replacement policies. However, it has taken six years to get to this point and there is no assurance that the gas industry operators will implement effective cast iron replacement programs in a timely manner to reduce their threat to public safety. RSPA has recently sent out an advisory bulletin telling gas pipeline operators that its rules require a program for identifying segments of cast iron pipelines that endanger public safety and for replacing those segments.

RSPA issued safety alert notices to operators of gas pipeline facilities in 1991 and again in 1992 that discussed the need for cast iron replacement programs. The Safety Board investigated the November 6, 1992, natural gas explosion that occurred in Catskill, New York and resulted in one fatality and one injury. The house that exploded had no gas service, but gas in the line in the street leaked into backfill for a sewer drain and into the house. The Safety Board determined during the investigation that Central Hudson Gas and Electric Corporation had not adopted a formal procedure for monitoring and systematically replacing cast iron pipe. A recommendation was issued to Central Hudson, and the Board will continue to place emphasis on the need for cast iron replacement programs. On June 28, 1993, a 12-inch cast iron gas main in Washington, D.C. ruptured. As a result of the accident, there were four injuries and one fatality. The pipe had a 17

inch by 4.5 inch hole due to extensive graphite corrosion. Public Law 102-508 section 107 (Replacement of Cast Iron Pipelines - October 24, 1992) requires that within two years of the issuance of industry guidelines that the Secretary conduct a survey of operators plans for safe management and replacement of cast iron pipes.

Safety of Military Base Gas Systems

On December 9, 1990, a gas system valve between one of Fort Benjamin Harrison's gas distribution systems and a disconnected segment was inadvertently opened, allowing gas to enter residential buildings that had previously received their gas from the disconnected segment. Gas accumulating in one of the buildings was ignited. The resulting explosion killed two occupants and injured 24 persons. One building was destroyed and two others were damaged.

Although the U.S. Army made many improvements in its operations since the accident, the Safety Board found in its report on the accident that many improvements were still necessary for the Army to safely operate natural gas distribution systems. The Army's gas distribution systems need to be managed by persons qualified by experience and training in gas distribution system design, construction, and operations. The maps used in operating gas systems require updating to eliminate inaccuracies and to include omitted information. Annual assessments of adherence to design, construction, maintenance, and operation standards should be performed to identify and correct deficiencies. Also, the U.S. Army should require that its gas pipeline systems conform to the Federal design, construction, operation, and maintenance requirements that are applicable to civilian gas distribution systems. The Board issued eight recommendations to the Secretary of the Army for improving its gas pipeline safety operations. The Army responded favorably to all eight of the Board's safety recommendations and they have been "Closed -- Acceptable Action". The recommendations closed required gas safety pipeline systems to conform with existing Federal regulations and to provide proper equipment and training, qualified personnel, update of maps, annual assessments and employee training and certification.

The Board compared the gas pipeline operations of the Army with those of the U.S. Navy and the U.S. Air Force and found several areas where similar deficiencies appear to exist. Consequently, the Board recommended that the Secretaries of the Navy and the Air Force evaluate their gas pipeline safety programs to identify and correct deficiencies, if any. The Navy and Air Force have not responded to the recommendations addressed to them.

Improved Pipeline Isolation Capability

The Safety Board has supported greater use by the pipeline industry of remote and automatic valves to promptly isolate failed portions of pipelines. Pipeline operators, after experiencing accidents that were investigated by the Safety Board, have recognized the value of these types of valves and have improved the capability of their pipeline systems to isolate future failures. Based on findings in its March 1991 report, "Emergency Flow Restricting Devices Study," the RSPA now is considering a proposed rulemaking to require the installation of remotely-operated valves on pipelines at either side of water crossings and at locations in close proximity to the public. The RSPA also is considering a requirement to retrofit existing main line valves or to install new remote controlled valves on liquid pipelines located in urban areas. However, this work is being delayed by a RSPA review that is intended to eliminate requirements that are not cost effective. On October 24, 1992, legislation was passed requiring the Secretary of Transportation to conduct a study, within two years, on the effectiveness of emergency flow restricting devices and other procedures, systems, and equipment used to detect and locate pipeline ruptures and minimize releases. Within two years of the completion of the survey the Secretary is to issue regulations for the use of emergency excess flow restricting devices and other systems.

On March 28, 1993, a 36-inch-diameter Colonial Pipeline that was transporting fuel oil ruptured in Reston, Virginia. The remotely operated valves were spaced 45 miles apart in the area of the accident. Before the spill could be controlled, 407,000 gallons had been released, much of it into Sugarland Run Creek which flows into the Potomac River, upstream of water in-take valves for Northern Virginia. The Safety Board testified on May 18, 1993, before the House Subcommittee on Investigations and Oversight, that remote valves had to be spaced closer in highly populated and environmentally sensitive areas.

Improved Monitoring of Liquid Pipelines

Safety Board investigations of liquid pipeline accidents have resulted in pipeline operators improving their pipeline monitoring systems to better detect releases of products. This also has resulted in RSPA's initiation of a program to assess the adequacy of its pipeline monitoring requirements. The Texas Eastern Products Pipeline Company, as a result of the March 13, 1990, failure at North Blenheim, New York, now is monitoring each of its pump stations to alert its dispatchers of failures and other abnormal operations. The Buckeye Pipe Line Company, as a result of the March 30, 1990, failure at Freeport, Pennsylvania, has modified its monitoring system to provide additional alarms to alert its dispatchers to abnormal operating conditions. In March 1992, the Colonial Pipeline Company began operating its new pipeline monitoring system. This system provides data updates at five second intervals through uses of satellite communications and it uses a leak detection subsystem to approximate the location of major leaks or other abnormal operations. In its March 1991 report, "Emergency Flow Restricting Devices Study," the

RSPA announced that it is now considering whether it should modify its present pipeline monitoring regulations to require leak detection capabilities. The Safety Board believes that a means to promptly detect and identify the locations of releases from pipelines is essential to safe pipeline operations; however, RSPA has delayed this work pending its review that is intended to eliminate requirements that are not cost effective.

On April 7, 1992, Seminole Pipeline Company had a release of highly volatile liquids from a salt dome cavern. While the operator was alerted by sensors at the Supervisory Control and Data Acquisitions (SCADA) console, the system was not state-of-the-art and the operator did not recognize earlier signs of dropping pressure until a significant amount of material had escaped. In November 1993, the Board adopted a recommendation to the American Petroleum Institute and the American Gas Association that called for the development of standards and guidelines for the design and use of graphic display systems.

In the March 28, 1993, release of fuel oil from Colonial Pipeline, the dropping pressure and alarms on the SCADA system highlighted the leak and it was shut with remote valves within minutes of the leak. The Safety Board testified at the House Subcommittee on Investigations and Oversight that SCADA systems must have good leak detection and properly spaced remotely operated valves to quickly shut ruptured lines down and mitigate spills. As part of this investigation, the Safety Board will further study the need for good leak detection. Public Law 102-508 (October 24, 1992) also requires the study of systems and equipment used to detect and locate pipeline ruptures (section 212). RSPA is conducting a study of the effectiveness of leak detection systems within SCADA networks; the Safety Board will provide input to this effort when these efforts progress to rulemaking.

HAZARDOUS MATERIALS

Transportation of Hazardous Materials by Rail

On May 16, 1991, the Board adopted a safety study on the transportation of hazardous materials by rail. In support of the study, the Safety Board investigated 45 railroad accidents that occurred during a one year period, and reviewed reports of its past major accident investigations and special studies. The study identified the movement of more than 1.52 million carloads of hazardous materials in 1989. The Safety Board also found that, during the five-year period from 1985 through 1989, there were 2,121 railroad accidents involving hazardous materials, and more than 100,000 people were evacuated following railroad accidents in which hazardous materials were involved.

The study concluded that hazardous materials that are highly flammable or toxic, or that pose a threat to the environment, are frequently transported in tank cars that provide inadequate protection even though better protected tank cars are available. As a result, the Board urged the Department of Transportation (DOT) to consider the environmental hazards posed when conducting its risk analysis on the release of hazardous materials from tank cars. The Safety Board also called for industry to develop a list of the more dangerous products now being shipped in DOT-111A tank cars and to voluntarily begin shipping these products in better protected cars while the DOT carries out its product risk assessment.

The Chemical Manufacturers Association (CMA) now requires each of its members to have an ongoing chemical distribution risk management program to evaluate chemical distribution risks and develop and implement risk reduction methods that are appropriate for the level of risk. To assist companies in their risk assessment/risk reduction efforts, the CMA has developed tools for qualitative distribution risk management, and has been working with the Association of American Railroads and the Railway Progress Institute to develop a quantitative risk assessment protocol. The risk assessment program will consider the characteristics and hazards associated with chemicals transported, tank car type and volume, shipping conditions, track class, and other variables.

In at least 21 of the 45 cases investigated, the Safety Board found that local emergency response incident commanders did not have a hazardous materials emergency response plan to follow, and in 19 of the 45 cases, incident commanders and railroad personnel had not been in contact with each other to develop a plan of action in the event of a train accident involving hazardous materials. Based on these findings, the Safety Board called for various organizations, such as the National League of Cities and the International Fire Chiefs Association, to urge their members to develop and coordinate written emergency response plans and procedures for handling hazardous materials releases between emergency response organizations and railroads.

Nine major railroad systems have responded positively to the Safety Board's recommendations calling for improved coordination with communities adjacent to railroad yards and along railroads' hazardous materials routes; likewise, these railroad systems are taking actions to establish hazardous materials training programs and evaluation systems for their employees. The American Short Line Railroad Association also notified all of its members of the need to meet the intent of the Board's recommendations. Finally, the Safety Board accepted the Federal Railroad Administration's response that the Research and Special Program Administration's final rule "Training for Hazardous Materials" would require railroad employees to be trained in hazardous materials emergency procedures before they could operate a train. Additionally, the final rule would require rail carriers to document the training provided for each of their employees.

Cargo Tank Rollover Protection

In 1991, the Safety Board investigated seven highway accidents involving truck cargo tanks that overturned, resulting in damage to top fittings and the release of hazardous materials. The findings from these investigations were published on February 4, 1992, as part of the Safety Board's Special Investigation Report on Cargo Tank Overturn Protection. All of the cargo tanks were equipped with rollover protection devices to protect the top fittings. However, the Safety Board found that in three of the rollover accidents, structural failure of the rollover protection devices resulted in impact damage to the top fittings, and in four of the rollover accidents, the design and configuration of the rollover protection devices were not adequate to protect and shield the fittings from objects external to the tanks or from plowing into the ground.

The Safety Board concluded that the FHWA had not adequately exercised its enforcement responsibilities pertaining to cargo tank design and construction requirements, that the industry was not provided sufficient guidance on how to comply with the minimum safety requirements, and that the accident data bases were not adequate to identify important trends or potential problems related to the design and construction of cargo tanks.

As a result of the special investigation, the Safety Board issued 12 safety recommendations to the FHWA and the RSPA. The Safety Board recommended that cargo tank manufacturers be provided specific written guidance about factors and assumptions that must be considered when calculating the loads on rollover protection devices and acceptable means to shield and protect the top fittings. Further, the Board recommended that the FHWA and the RSPA take action to improve the performance of rollover protection devices by modeling and analyzing the forces that can act upon rollover protection devices during a rollover accident and to promulgate performance standards for rollover protection devices based on the engineering modeling and analysis. The Safety Board also recommended that improvements be made in the collection of information necessary to identify patterns of cargo tank equipment failure and that a compliance program be implemented to evaluate if newly-manufactured cargo tanks meet design and construction requirements.

On July 19, 1992, the FHWA responded to these safety recommendations and advised the Safety Board that it had hired a contractor to evaluate the designs of overturn protection devices used by specific manufacturers and was developing an enforcement program to systematically evaluate the design and construction of cargo tanks. The program will include hiring 2 full-time structural engineers. The FHWA further informed the Safety Board that it would explore the feasibility of improving the performance requirements for rollover protection devices on cargo tanks by modeling and analyzing the forces that act upon rollover protection devices during a rollover accident. The FHWA also will work with RSPA to implement the remaining recommendations if found, as a result of analysis, to be necessary.

The RSPA also responded to these safety recommendations by advising the Safety Board that it would help the FHWA to evaluate rollover protection device requirements for cargo tanks, including those that failed in accidents investigated. After initially declining to offer guidelines to the industry, the RSPA indicated on April 20, 1993, that it will now work with the industry to develop guidelines on how to comply with current requirements.

Inspection and Testing of Railroad Tank Cars

On December 22, 1992, the Safety Board adopted a special investigation report on the testing and inspection of railroad tank cars. The special investigation was prompted by two 1992 railroad accidents involving the structural failures of a pressure dual diameter tank car and a nonpressure tank car transporting hazardous materials.

On January 18, 1992, a pressure tank car filled with 32,000 gallons of liquefied propane fractured and separated along a circumferential weld in Dragon, Mississippi. The separation resulted in the sudden and complete release of the entire load of propane from the tank car. There was metallurgical evidence of a 21-inch long preexisting crack at the origin of the fracture. Post accident testing and inspection of 108 other pressure tank cars of the same design revealed that 40 tank cars had cracks (estimated at 2 to 48 inches in length) in the same location. Since 1988, 25 of the 40 tank cars with cracks had been tested and inspected under the Department of Transportation's (DOT) regulations, including 13 tank cars that were retested and reinspected in 1991 and 1992.

On March 25, 1992, a nonpressure tank car containing about 13,000 gallons of sulfuric acid cracked circumferentially, resulting in the release of the entire cargo. There also was metallurgical evidence of a preexisting crack in the area of the failure. At the time of the accident, the tank car was transporting its first cargo since it had been retested and reinspected in accordance with DOT regulations in February 1992.

In addition to these accidents, the special investigation report also focused on several cracking and structural failures at the stub sill-to-tank attachments on various classes of DOT specification tank cars that occurred since the mid 1980s.

Because of these structural failures, the Safety Board examined the adequacy of the DOT regulations pertaining to the periodic testing and inspection of DOT specification tank cars. The Safety Board also examined current industry practices and standards for testing and inspecting tank cars. The Safety Board concluded that current DOT regulations are not effective for the detection of structural defects in welded tank cars before sudden and complete failure. The Safety Board also concluded that various nondestructive testing methods, if applied at the appropriate intervals based on damage-

tolerance concepts, could detect existing cracks before the catastrophic failure of a tank car, but that more research is needed to determine the appropriate test method and inspection interval.

Consequently, the Safety Board recommended that the Federal Railroad Administration (FRA) work with the Association of American Railroads (AAR) and other industry associations to evaluate how the various nondestructive testing methods can best be applied for the testing and inspection of tank cars. The Safety Board also recommended that the FRA and Research and Special Programs Administration (RSPA) jointly develop safety standards for the periodic inspection and testing of tank cars that establish inspection intervals based on the propagation rates of defects and the defect size that can be detected by the nondestructive testing method used.

SAFETY STUDIES

Safety studies are performed to stimulate improvements in the policies, programs, activities, methods, processes, or statutory authority of Federal or state agencies, or to advance technological improvements in a transportation system, subsystem, or component.

In selecting subjects for safety studies, the Safety Board identifies ongoing or potential safety problems or issues of national significance which have one or more of the following characteristics and which can be accommodated under current personnel and scheduling limitations:

1. Potential for reducing accident losses.
2. Potential for improving the safety effectiveness of other government agencies.
3. Potential for attaining implementation of previous Board recommendations.
4. Adequacy of program resources committed by other government agencies.
5. Timeliness with regard to transportation agency program planning and implementation.
6. Potential impact on regulatory or other safety programs.
7. Congressional and public interest.

Highlights of some of the current safety studies follow, with studies which support our "Most Wanted" Safety Recommendation Program denoted by an asterisk.

AVIATION

Flightcrew Involvement in Part 121 Air Carrier Accidents

One or more members of the flightcrew were identified as causing or contributing to more than 190 accidents of air carriers (14 CFR Part 121) during the past 15 years. Until now, little has been done to examine, systematically and comprehensively, what the Board has stated in its past investigations about the contributions to accidents by individual members of the flightcrew.

A detailed assessment has been conducted of 37 air carrier accidents involving large transport airplanes in which the Board cited deficiencies in flightcrew performance in a major accident investigation report. Flightcrew errors have been classified according to one of nine error types. Each error has been evaluated according to crew-related factors, such as time since awakening, experience, training, and crewmember at the controls (captain or first officer). The data was collected from the Board's aviation accident and safety recommendation data bases, "blue cover" reports, and dockets.

The results of the study will be discussed at a January, 1994 Board meeting. The results should be useful to researchers and other persons concerned with air carrier crew performance. Improved technologies for organization and analysis of factual information by air safety investigators should be another product of this report. The results will also be used to identify additional safety study topics. Finally, the study may well result in the reiteration of existing or the issuance of new safety recommendations.

Safety of On-Demand Part 135 Air Taxis

The accident record of on-demand air taxis operating under 14 CFR Part 135 is far worse than the record compiled by scheduled air carriers. On-demand Part 135 operators were involved in 74 accidents involving 66 fatalities according to preliminary 1992 statistics. The fatal accident rate per 100,000 flight hours (1.08) for on-demand Part 135 air taxis was 32 times worse than that of Part 121 air carriers and more than three times worse than that of scheduled Part 135 commuter airlines. Although overall accident rates for on-demand Part 135 air taxis have declined over the ten year period from 1982 to 1992, fatal accident rates have remained relatively unchanged.

This study will examine current practices in the Part 135 air taxi industry related to personnel qualifications; training programs; and managerial, operational, and maintenance practices. FAA surveillance and regulations related to air taxis also will be reviewed.

The study will use the Safety Board's aircraft accident database to identify operational, mechanical, organizational, and environmental factors that distinguish on-demand air taxi accidents. Based on this data review, a supplemental data collection form will be designed for use by air safety investigators in accidents involving on-demand Part 135 air taxis that occur during a specific period of time.

A survey of air taxi operators also may be conducted as part of this study to identify the characteristics of each segment of the industry. In addition, information will be obtained from FAA flight standards databases to identify the frequency and type of surveillance typical for air taxis of different sizes, locations, and types.

Commuter Airline Pilot Training

This study will examine issues related to commuter airline pilot training. Of special interest are scheduled commuter airlines that do not use simulators for pilot training. The Safety Board recently investigated three accidents (Business Express Flight 91, CCAir Flight Trainer 2, and GP Express Flight 11GP) in which commuter pilots were engaged in night training or checkrides. The study will examine the danger of practicing abnormal/emergency procedures in actual flight (rather than in flight simulators), the establishment of standard guidelines about the number and types of maneuvers to be conducted, the conditions under which various maneuvers should and should not be attempted, the criteria for evaluating satisfactory and unsatisfactory performance, and the point at which the instructor/check-airman should intervene. Additionally, there is concern that a large number of these accidents occur at night when company aircraft are not being used for revenue flights and are available for training and checking. Because these flights are conducted under FAR Part 91 as non-revenue operations, the pilots and instructors/checkairmen are not prohibited from participation due to high duty time prior to the training/checkride. The role of fatigue in non-simulator versus simulator pilot training will also be examined.

A number of scheduled commuter carriers will be surveyed to determine for which aircraft types flight simulators/training devices are available, why simulators/training devices are not utilized when they are available, and other issues related to the evaluation of pilot performance. Past accident investigations will be reviewed. Any commuter carriers involved in accidents during the study period will receive a detailed review of their pilot training procedures.

RAILROAD

Railroad Work/Rest Cycles*

The changing nature of railroad operations has increased the relative number of train crewmembers in some locations who must work irregular and unpredictable shifts on an extended basis. Train crews who work the road extra board or in pool crews are particularly vulnerable to unpredictable and unplanned shift work schedules. Employees filling these assignments can be called any time of the day or night on short notice, in some cases with only 2-hours notice, after having been off duty 8 or more hours. The irregular nature of such schedules can affect the employee's level of alertness. Work/rest requirements in the railroad industry are regulated by the Hours of Service Act. However, the Safety Board has investigated accidents in which operator fatigue contributed to the cause of the accident.

This study will examine the role of fatigue and the effects of work/rest cycle scheduling practices on accident causation. Detailed information regarding the work and non-work activities as well as sleep behavior of train crewmembers will be collected during accident investigations. The role of railroad management and unions in considering the effects of unpredictable work schedules will also be documented.

Preliminary research on this study to develop a measure that could quantify work schedule irregularity in the railroad industry and discriminate between a non-accident and an accident-involved population has not been successful. No differences could be detected between the two groups on measures such as weekly and monthly averages of work start times, shift duration, time off between consecutive work shifts, and work start time deviations. The Board is researching whether more detailed information regarding work hours, sleep time, and other non-work activities are needed to conduct a valid study.

Railroad/Highway Grade Crossing Safety

There are about 5,600 accidents, 630 deaths, and 2,300 injuries each year at or in relation to railroad grade crossings. Although past accident investigations and safety studies conducted by the Safety Board have recommended improvements at grade crossings, grade crossing accidents continue to kill and injure more people than any other type of railroad accident. Research to determine if additional countermeasures related to engineering improvements, enforcement of traffic laws at crossings, development of safety regulations and standards, and public education about crossing safety could reduce the number of grade crossing accidents, and therefore appears to be warranted. Of particular interest in this study will be issues related to passive crossings, adequate sight distance, and proper roadway alignment. The need for driver manual uniformity among the States may also be considered.

This study will be a synthesis of new grade crossing accident investigations; analyses of NHTSA and FRA data bases; and a review of current grade crossing safety research.

HIGHWAY

Fatigue In Commercial Vehicle Accidents*

The 1990 Safety Board study of "Fatigue, Alcohol, Other Drugs, and Medical Factors in Fatal-To-The-Driver Heavy Truck Crashes" (NTSB/SS-90/01) found that fatigue was the most frequently cited probable cause of these accidents (31 percent) followed by alcohol

and other drug impairment (29 percent). Fatigue has been identified as a cause or contributing factor in a substantial number of major accident investigations conducted by the Board.

There are few, if any, direct measures of fatigue. The Board can assess fatigue only indirectly by studying data that are associated with or predictive of fatigue, such as a person's work and rest schedule (that is, the amount of time spent sleeping or working, or the regularity of work and off duty time). Certain operational and environmental characteristics of the trucking industry are also thought to be associated with fatigue. It is the purpose of this study to assess the relationship between these characteristics of trucking operations and driver patterns of work and rest (and thus fatigue).

The study includes over 100 single vehicle truck accidents in which the truck driver survived. The accident investigations include a determination of probable cause, and inspection of the vehicle where necessary, an interview with the motor carrier where applicable, and a personal interview with each involved driver regarding demographic information, experience and training, work/rest schedules, medical history, and a complete 72-96 hour history of the events leading up to and including the accident. A final report should be completed before the end of the fiscal year.

Child Passenger Protection

In 1991, about 6,700 children under the age of 13 were involved in automobile accidents in which there were at least one fatality (FARS 1991). Approximately 19 percent (1,275 of 6,700) of the child passengers were fatally injured, and approximately 63 percent (807 of 1275) of the fatally injured children were unrestrained. Further, about 51 percent (3,400 of 6,700) of the children involved in the fatal accidents were unrestrained. Of this 51 percent, only 15 percent sustained no injury.

There is no doubt that when children under forty pounds (the upper weight limit of most child safety seats), are properly restrained, they fare better in accidents than those who are not restrained. What is not clear from the accident data is whether injuries are exacerbated by improper use of child safety seats and/or incompatibility between child safety seats and vehicle seat belts. Further, since the Board's last study of child safety seats in 1983, a new generation of seats exists. The performance of these seats in accidents should be examined.

For children over forty pounds, there is little information regarding the performance of child safety booster seats or the effectiveness of lap-only or lap/shoulder belts for children. It is not clear whether the shoulder harness can cause injury if it cuts across the child's neck, on one hand; or whether, on the other hand, a child restrained by a lap-only belt, with or without a booster seat, may sustain abdominal or head injuries.

This study would include any accident in which there is towaway damage and in which there is a child under 13 years old in the towed vehicle. Evaluation of the performance of the restraints will be based on a determination of occupant kinematics, vehicle dynamics, direction of force, change in velocity at impact (Delta V) and injury analysis. Special attention will be paid to the performance of air bags protecting children (restrained or unrestrained). The study would also include a State by State analysis of the current child passenger protection laws and enforcement activities. Restraint use and injury information will be obtained for all occupants of the vehicle and analyzed as appropriate.

MARINE

Pilotage

The safe pilotage of vessels on the navigable waters of the United States involves many factors. Among these factors are the qualifications and capability of the pilot, including licensing and training. Other factors that influence the pilot's effective control of a vessel include the geographic characteristics of the port or waterway; meteorological conditions; communications between the pilot and the bridge crew (especially between the pilot and the master); communications between the crew members; and the design of the navigation bridge.

According to the Casualty and Maintenance (CASMAIN) database, there were 326 marine accidents involving pilots in 1990. This was 19 percent of all marine accidents. For this study, the Safety Board will investigate six to ten accidents in which pilots are involved and will review past accident investigations for pilot-related safety issues. The communications issues to be examined include language barriers, timeliness of communication between the master and pilot, and the need for standardized directions. The pilot qualifications issues to be examined include the length of training and instructor qualifications.

In addition, the study will revisit the pilotage issues highlighted in the Board's PETERSFIELD report including the lack of effective state oversight of pilots and the lack of authority of the U.S. Coast Guard to exercise oversight of state-licensed pilots. Although virtually all state pilots are required, as a pre-condition to state licensing, to have a Federal pilot's license, state pilots are not considered to be operating under the authority of their Federal license. Thus, the Coast Guard is powerless to take disciplinary action against the license of a pilot who has, through misconduct or negligence, caused a serious marine accident. Many state pilotage authorities have been lax in their own efforts to discipline pilots, which results in ineffective pilots remaining in service.

Fishing Vessel Safety *

In a 1987 report, the Board concluded that "the commercial fishing vessel industry is one of the highest risk industries in the world and has the poorest safety record of any industry in the United States." The Board issued recommendations related to training and licensing of captains of fishing vessels. The report also recommended that basic safety equipment be required on board commercial fishing vessels.

Inspection of the more than 200,000 fishing vessels for compliance with Coast Guard regulations, remains a concern. Currently there are no inspection standards and inspection is voluntary. The Coast Guard does conduct voluntary inspections at dockside and boardings at sea. The Coast Guard and the fishing vessel industry do not agree on the type of inspection procedures that should be employed and are working to resolve their differences.

The issues of licensing and inspection are both pending before Congress. It is more likely that legislation related to licensing will pass than will inspection related to licensing. The Board proposes to monitor the Congressional activity in the licensing and inspection areas. If Congressional action is not taken by December 1993, the Board will consider undertaking another study on commercial fishing vessel safety focusing on the need for fishing vessel inspection and licensing of fishing vessel masters.

SAFETY ACCOMPLISHMENTS

The goal of the Safety Board is to achieve the greatest possible safety benefits from its accident investigations, safety studies, and other safety promotion activities. As a result of these activities, the Board issued 299 safety recommendations during fiscal year 1993. Since 1982, 82 percent of the Safety Board's recommendations have been accepted by the respective recipients. The following are examples of some of the Board's recent safety accomplishments, resulting either from safety recommendations or other safety promotion efforts. Those accomplishments resulting from or related to our "Most Wanted" Safety Recommendation Program are denoted by an asterisk.

Safety Accomplishments Program

In 1990 and 1991, a program was developed within the Safety Board to recognize transportation safety enhancements brought about through some direct action by a Safety Board employee that was not the result of a formal safety recommendation. A Board Order defining the "Safety Accomplishments Program" was implemented on July 12, 1991. In that document, a "Safety Accomplishment" was defined as:

...a positive change within the transportation environment that is brought about through some direct action of a Safety Board employee...[and]...must be measurable and documented to show the involvement of the Safety Board employee...In general, a "safety accomplishment" differs from a "safety recommendation" in that the safety enhancement is usually site specific and local in nature and implementation can be effected by local officials or one of the parties to the investigation below the national level. (NTSB Board Order 84, Paragraph 3)

This program was instituted because the Board found that a great number of transportation safety enhancements were initiated by Board investigative and technical staff during the conduct of an investigation or safety study. These enhancements were initiated through NTSB staff suggested improvements at the accident scene or during followup fact gathering activities. Because of the number and importance of these events, the Board decided to recognize these accomplishments through an established program.

The following table shows the size of the program and gives a suggestion of the impact of the enhancements.

**Safety Accomplishments
Submitted by Calendar Year**

MODE	1991	1992	1993	TOTAL
Aviation	11	38	44	93
Highway	6	5	6	17
Railroad	1	12	6	19
Pipeline	0	1	1	2
Haz. Mats.	0	1	0	1
TOTAL	18	57	57	132

AVIATION

Standardization of Flight Recorder Documentation

In March 1991, the Safety Board recommended that the FAA issue permanent policy and guidelines for the continued airworthiness of digital flight data recorders (DFDR). This recommendation resulted from a number of accident investigations in which the operator was unable to provide the documentation needed by the Safety Board to decipher the information recorded by the DFDR. Such detailed documentation also is needed by the operator to perform required periodic maintenance checks of the DFDR system. Further, because the parameter documentation for different DFDR systems is not presented in a standard format, the exchange of DFDR documentation between government and industry is difficult. To lessen this problem, the Safety Board developed a documentation standard that is currently being adopted by the international aviation community as an attachment to the Aeronautical Radio Inc. (ARINC) DFDR standards. The FAA has acknowledged the need for additional policy and guidance material in this area and has requested the Safety Board's participation in its development. In response to this request, the Safety Board developed a draft advisory circular.

Aircraft Carburetors

On September 21, 1991, two persons aboard a Cessna Model 172P were killed when the airplane sustained a loss of engine power shortly after takeoff and crashed. The Safety Board's investigation of the accident disclosed that the engine malfunction occurred when the carburetor's primary venturi separated from the carburetor and was ingested into the engine intake manifold. The carburetor was a Marvel-Schebler Model MA-4SPA equipped with an older two-piece venturi system, consisting of a separate primary and main venturi. Marvel-Schebler carburetors are installed in thousands of general aviation airplanes. However, the two-piece venturis used on these carburetor models have had a history of service difficulties. A new, improved one-piece combination primary and main venturi casting has been designed for new carburetors and field retrofit, but its installation is mandatory only in Marvel-Schebler MA4-5 carburetors. As a result of its investigation, the Safety Board issued an urgent safety recommendation to the FAA recommending that an AD be issued applicable to all Marvel-Schebler and Facet Aerospace MA-3A, MA-3PA, MA-3SPA, and MA-4SPA carburetors. The AD would require the expedient replacement of two-piece venturi systems with a one-piece combination primary and main venturi casting, in accordance with Precision Airmotive Corporation Service Bulletin No. MSA-2 regarding this subject.

The FAA issued AD 93-18-03, effective November 29, 1993, requiring inspection of the carburetors for loose or missing primary venturis at each annual inspection. Additionally, the AD requires, at the next carburetor removal for overhaul or repair (but not later than 48 months after the AD effective date), replacement of the two-piece venturi with a one-piece venturi.

Foreign Accident Investigations

Because of the ever increasing number of U.S.-manufactured and U.S.-registered airplanes operating overseas, and because of the Safety Board's status as the sole U.S. accredited representative at foreign accident investigations under the provisions of the International Civil Aviation Organization (ICAO), U.S. manufacturers and operators rely heavily upon the Board to facilitate their involvement in the investigation of foreign incidents and accidents. A major airline accident involving fatalities anywhere in the world causes significant concerns on the part of the travelling public; both in the U.S. and overseas. The Board's involvement in the investigation of major international accidents assists in reducing these concerns and provides a critical contribution both to U.S. foreign relations and to strengthening the Nation's balance of trade posture through aviation exports. Some examples of the Safety Board's involvement over the past year follow.

Over the past few years, the Safety Board has developed considerable professional contacts within the Civil Aviation Administration of China (CAAC) of the People's Republic of China (PRC). During 1993, a delegation of accident investigators from CAAC visited

the Safety Board's facilities and the Safety Board sent a delegation to the PRC. As a result of the rapid expansion of Chinese airlines and their use of U.S. manufactured airplanes, the Safety Board believes that there will be an increased need to improve communications between the Safety Board and the CAAC.

Recently, the Safety Board sent investigators to the PRC to assist in the investigation of an accident involving a China Northern McDonnell-Douglas MD-87 that crashed at Urumqi, China. The airplane was on approach to the airport when it descended below the glideslope approach path and crashed. The Safety Board's laboratory has been assisting in the examination of the cockpit voice recorder and the flight data recorder.

On November 24, 1992, the Safety Board sent a U.S. accredited representative to lead the U.S. team in assisting the accident investigators of the PRC in the investigation of a China Southern Airways Boeing 737-300 that crashed on approach to Guilin, China. All 141 persons on board the airplane were fatally injured. The initial investigation found that the airplane impacted the face of a nearly vertical mountain. Very little of the wreckage was recovered. The flight data recorder was found and an initial read out of the data was accomplished in Beijing. Unfortunately, the last 3 minutes of the tape were severely damaged by impact. The U.S. Accredited Representative has worked closely with the Chinese investigator-in-charge to have the tape taken to the Safety Board's laboratory to determine if portions of data from the damaged section could be recovered. The CVR has not been recovered and a reward was made available by the Chinese government in an effort to locate the recorder. The initial FDR readout found no evidence of a problem that would have caused loss of control of the airplane. Impact marks on the cliff indicate that the airplane was in a 90 degree right bank and pitched down prior to impact.

As a result of the opening of communications with the States of the former Soviet Union, considerable information regarding the shootdown of Korean Air Lines flight 007 was made available to the International Civil Aviation Organization (ICAO). The Safety Board was actively involved as technical representative to the ICAO investigation. Safety Board investigators assisted in the examination and readout of the CVR and DFDR tapes recovered from Korean Air lines flight 007, and provided technical assistance regarding the airplane's systems, performance, and operational factors. The final report on the ICAO investigation was released in July 1993.

On April 5, 1993, a Boeing 767 operated by TACA International went off the end of the runway after landing at Guatemala City. The airplane was substantially damaged. The Safety Board sent a team to assist in the investigation. Witness statements and examination of the DFDR indicated that the airplane landed about 3,000 feet down the runway at 17 KIAS above Vref. The investigation also determined that due to the surface condition of the last third of the runway, there was essentially no braking available on that section. The Safety Board has been active in contacting U.S. airlines that operate at the airport to inform them of the poor braking conditions on the last section of the runway.

On July 31, 1992, Thai Airways flight TG311, an Airbus A310-200 equipped with General Electric CF6-80C2 engines, crashed on a mountain north of Kathmandu, Nepal. All 113 people on board the airplane were fatally injured, including 13 American citizens. On September 28, 1992, a Pakistani Airlines Airbus A300-B4 crashed on approach to Kathmandu, Nepal. All 166 people on board the airplane were fatally injured, including 2 American citizens. As the country of manufacture, France sent an Accredited Representative to the accident scene. The engines of both airplanes were manufactured by General Electric, which sent representatives to assist in both investigations. The Safety Board monitored both investigations through our counterparts in the French government and at General Electric. These two accidents represent many such cases where Safety Board investigators do not travel to the accident site but a U.S. Accredited Representative is assigned to monitor the investigation. If a situation is found that could raise concerns as to the safety of airplanes operating in the U.S. or U.S. airlines operating overseas, the Safety Board would issue recommendations to address these concerns.

On June 6, 1992, a Boeing 737-200, operated by COPA Air Lines, suddenly descending from cruise flight and crashed near the jungle village to Tucuti, Panama. All 47 people on board the airplane were fatally injured. Prior to the accident the airplane had been in cruise flight at an altitude of 25,000 feet when it suddenly rolled to a nearly inverted position, and entered a very steep dive. The Safety Board sent an investigative team to assist in the investigation. The flight data recorder and the cockpit voice recorder were sent to the Safety Board's laboratory for examination. The on-scene investigation revealed that the airplane broke apart at a relatively low altitude due to aerodynamic overload. Examination of the engines, flight control, surfaces, instrumentation, and weather data did not provide a cause as to why the airplane deviated from controlled flight. Many of the cockpit instruments and sensors that provide data signals to the instruments were sent back to the U.S. for examination under the direction of Safety Board experts. Additionally, the Safety Board sent a team to the United Kingdom to review the maintenance records of the airplane. The Government of Panama is in the process of writing the final report on the accident, which is expected to be completed by April 1994.

The Safety Board continues to monitor several other ongoing foreign investigations for any potential safety issues affecting U.S. aviation safety. In addition to on-scene assistance, considerable efforts are expended by the Board in assisting foreign governments with flight recorder readouts, oversight of engine teardowns or examinations of other components, and gathering pertinent data to assist the Board's counterparts in other countries. Currently the Safety Board is involved in over 40 active foreign cases, many of which have led to safety improvements.

Lycoming Engine Fuel Line Cracking

On March 2, 1992, the Safety Board issued a safety recommendation to the FAA regarding serious engine malfunctions in Piper PA-32 series airplanes equipped with Textron Lycoming TIO-540-S1AD engines. The recommendation resulted from the investigation of a PA-32 accident in which two people were killed and the airplane was destroyed. The Safety Board discovered that the malfunction of the engine was caused by an in-flight separation of the fuel injection line between the fuel manifold and the nozzle. Because of inadequate support in the system, the fuel line was subjected to excessive vibration, which eventually led to its failure and separation. The Safety Board determined that this, as well as several other reported fuel injection line failures, occurred after maintenance personnel failed to reinstall the support clamps following removal of the fuel injection lines for engine overhaul or for other reasons. On June 5, 1992, the FAA issued an emergency airworthiness directive (AD), applicable to Textron Lycoming Model TIO-540-S1AD. The AD requires inspection of the fuel injector lines for missing or damaged clamps. This AD also requires replacement of lines that show evidence of damage or fuel leakage. Because the Safety Board determined that this unsafe condition could exist or develop on other Textron Lycoming engines of the same type design, the FAA later issued an amendment to the emergency AD to require the same inspection on all other Lycoming fuel injected reciprocating opposed piston engines.

Search and Rescue (SAR) Response Following Aviation Mishaps

In recent years the Safety Board investigated several aircraft accidents which involved considerable delays in SAR efforts. Although none of these accidents involved a victim whose life could have been saved by a more expeditious SAR, the Board was aware of other accidents in which the occupants of the aircraft may have survived the initial crash, but were not alive when rescuers finally arrived on the scene. The Board concluded that the problems identified in those accidents should be corrected to enhance the potential for lifesaving and expeditious location of wreckage in future SAR operations.

Accordingly, the Safety Board issued safety recommendations to the FAA, the U.S. Air Force, and the U.S. Coast Guard, which urged procedural changes to enhance and improve the timeliness and effectiveness of SAR response. Satisfactory actions have either been initiated or completed on virtually all of the twelve safety recommendations. The Safety Board is continuing to monitor the adequacy of SAR response as a part of its investigative activities.

Transport Aircraft Structural Icing

The Safety Board has long been concerned about the hazards of structural icing for transport category aircraft. Since 1981, the Safety Board has issued numerous safety

recommendations concerning the measurement, forecasting, avoidance, and the protection of aircraft against such conditions. The March 22, 1992, crash of USAir Flight 405 at New York's La Guardia International Airport, and the Safety Board's investigation

and public hearing following the accident, further prompted a renewed industry focus on the problems of operating aircraft in adverse weather conditions. Following the accident, the FAA initiated an intense effort to improve the safety of winter flight operations.

As a part of that effort, during May 1992, the FAA sponsored a two-day International Conference on Airplane Ground Deicing. More than 800 participants, organized into five working groups, discussed the problem and examined possible solutions. Based in part on recommendations, the FAA initiated rulemaking that established requirements for major air carriers to develop FAA approved ground deicing/anti-icing programs.

The Safety Board's report of the USAir accident, issued in February 1993, addressed 10 more safety recommendations to the FAA which focused on issues of airport and air traffic control, and operational procedures which could affect aerodynamic performance. Government and industry awareness and response to the hazards of aircraft icing during this past winter season, indeed, have been very encouraging.

MD-11 Inadvertent Slat Deployments

On April 6, 1993, during a flight from Shanghai, China to Los Angeles, California, a China Eastern Airlines MD-11 experienced an inadvertent deployment of all leading edge wing slats at FL330 over the Pacific Ocean. The airplane experienced severe pitch oscillations resulting in 2 fatalities and 160 other injuries. The airplane made an emergency landing at Shemya Air Force Base, Shemya, Alaska. On October 27, 1993, the Safety Board adopted a final report on this accident. The accident investigation is incomplete and the cause of the inadvertent slat deployment has not been positively identified. The Safety Board is aware of several other incidents of uncommanded in-flight slat deployment on MD-11 airplanes as a result of inadvertent crew contact with the flap/slat handle, and is concerned that such deployments can cause a loss of control.

As a result of the Safety Board's investigation of the China Eastern accident, and other incidents, McDonnell Douglas is currently working with the FAA and MD-11 operators to redesign the MD-11 flap/slat handle. The redesign is intended to greatly reduce the potential for inadvertent slat operation. McDonnell Douglas reports that a redesigned system will be available in mid-1994. Work on an interim design modification is in process to provide additional safeguards to the existing system until the redesign and subsequent testing is completed. The Safety Board will follow the redesign and

modification of MD-11 airplanes closely and has already issued urgent safety recommendations to the FAA on June 29, 1993, to assure prompt implementation of the design changes that are needed to prevent further MD-11 upsets in cruise flight.

Cessna 402C Fuel Tank Inlet Valves

On December 21, 1992, the Safety Board issued urgent safety recommendations to the FAA and the Cessna Aircraft Company as a result of its investigation of the crash of a Cessna 402C sightseeing airplane near Meadville, Arizona on June 19, 1992. Investigators found that the fuel tank inlet valves installed in the wing tanks were excessively worn and could have caused the tanks to unport, thereby causing interruptions of fuel to the engines. Sightseeing airplanes were particularly vulnerable to this condition because they were routinely operated at low fuel levels. The recommendations requested a higher minimum fuel quantity requirement for takeoff until the valves could be inspected, development of appropriate inspection guidelines, re-evaluation of the inlet valve pneumatic inspection procedure, and notification of operators of all affected airplanes. In response, the FAA issued immediate Airworthiness Directives warning operators about abnormal wear and raising the minimum fuel required for flight operations to prevent malfunctioning valves from causing interruptions of fuel flow to the engines. The FAA and Cessna are conducting extensive ground and flight testing to modify existing maintenance procedures for these valves.

Boeing 737 Rudder Control Binding

During the Safety Board's investigation of the March 3, 1991, crash of a Boeing 737 airplane, design discrepancies were found in components of the airplane's rudder system. The investigation determined that galling of the input shaft of the standby rudder system could occur. Although the galling was ruled out as a contributing factor to the accident, the Safety Board recommended to the FAA, on August 20, 1991, that all Boeing 737s be examined for galling, and serviced immediately if evidence of galling is found.

The investigation also determined that a servo valve within the main rudder power control unit could cause the rudder system to malfunction. Although the Safety Board determined that this was not a factor in the accident, the Board recommended to the FAA that test methods be developed to detect this problem until design changes become available and are implemented in the airplane.

On February 12, 1992, an NPRM was issued to require the inspection of Boeing 737 standby rudder power control units (PCUs) for galling. On April 19, 1993, the FAA withdrew the NPRM, stating that the galling condition should be readily detectable by the flightcrew before it caused any rudder control problems. However, as a result of the

Safety Board's action, Boeing has revised the model 727 and 737 Maintenance Manuals to emphasize the indications of input lever binding in the standby rudder PCU, which would facilitate an operator's ability to determine the proper maintenance action.

In addition, the FAA, Boeing, and the main rudder control valve manufacturer have worked together to develop a maintenance test of the PCU to identify potential failures. A redesigned PCU servo valve is available and the initial deliveries began in April 1993. The Safety Board will continue to monitor any anomalous rudder behavior reported in the B737 fleet.

Embraer EMB-120

On April 5, 1991, an Atlantic Southeast Airlines (ASA) Embraer EMB-120, Brasilia crashed while on approach to the Glynn County Jetport, Brunswick, Georgia. All 20 passengers and three crewmembers were fatally injured in the accident. Among the passengers were former Senator John Tower, his daughter, a NASA astronaut, and other prominent individuals. The investigation of the accident found that severe wear of a component in the propeller control unit (PCU) on the airplane's left engine resulted in a disengagement of the PCU system and subsequent loss of propeller control. The propeller blades then rotated to an angle that was below the flight idle position. The resulting asymmetrical lift and thrust rendered the airplane uncontrollable.

During the investigation, the Safety Board was informed of an incident involving an Air Littoral EMB-120 which experienced a loss of propeller control after takeoff from Rome, Italy. Inspection of that airplane's PCU revealed extreme wear on a different component of the PCU than had occurred on the ASA EMB-120. Subsequent investigation determined that, on three previous occasions and with different airplanes, operators have found that a propeller would not operate properly (feather) during ground tests. This information was included in the Safety Board's report on the ASA accident. In that report the Safety Board determined, in part, that contributing to the accident was "the deficient design of the propeller control unit by Hamilton Standard and approval of the design by the Federal Aviation Administration." Testing conducted during the investigation showed loss of aircraft control as a result of a single failure in the system, which is contrary to propeller certification requirements. The Safety Board issued three recommendations to the FAA to review the certification of the particular propeller control system, and similar systems with the same design characteristics from the same manufacturer, to ensure they comply with the certification requirements of 14 CFR 35.21. An additional recommendation was issued urging the FAA to require a periodic inspection of certain components of the propeller control system. The FAA agreed with the Safety Board's recommendations and has required additional inspections of the propeller control system and the development and installation of a fail safe feature to prevent the propeller blade angle from rotating below the flight idle position while in flight.

Grob Sailplanes/Motorgliders

On August 9, 1992, a Grob G103 sailplane crashed at Truckee, California, during a landing approach after the interconnected left and right wing spoilers became locked in the fully extended position. The left wing spoiler had extended beyond its normal limit and jammed against the spoiler cap recess. The wing spoilers are attached to and actuated by pivot arms within the wing structure which move vertically and laterally (from inboard to outboard). A stop block normally restricts movement of the outer pivot arm so as to preclude such jamming. However, the stop block in the accident aircraft was worn excessively, and allowed overextension of the spoilers. The wing spoiler systems in Grob G103 series sailplanes are similar to those installed in Grob G102 and G104 series sailplanes and in G109 series motorgliders.

Based on its findings, the Safety Board issued an urgent recommendation to the FAA calling for the inspection of the wing spoilers in these aircraft within the next 10 hours time-in-service to ensure adequate rigging clearance and integral stop blocks. Approximately 350 of these aircraft are currently operating in the United States.

In response to the Safety Board's recommendation, the FAA, on March 15, 1993, issued an NPRM soliciting comments regarding this matter. The NPRM proposed that an AD be issued requiring an inspection of the wing spoilers within 60 days after the effective date of the AD in accordance with applicable Grob service bulletins. Any necessary repairs would be performed prior to further flight.

Airframe Icing

In the past few years, the Safety Board has investigated several accidents where an airplane crashed due to snow or ice contaminating the wings or horizontal tail surfaces. On February 17, 1991, a Ryan International DC-9-15 cargo flight crashed on takeoff at Cleveland, Ohio. Both pilots on board the airplane were fatally injured. As a result of this accident, on November 16, 1991, the Safety Board made several recommendations to the FAA regarding the prevention of similar icing-related accidents.

More recently, on March 22, 1992, a USAir Fokker F-28 crashed on takeoff from LaGuardia Airport, New York. The Safety Board found contamination of the airplane's wings as a cause in this case. Of the 47 people on board, 24 were fatally injured. The Safety Board held a public hearing in Flushing, New York on June 22, 1992 to further develop the circumstances that led to this accident. As a result of this investigation the Safety Board issued several recommendations regarding the inspection and deicing of aircraft prior to flight. Recently, the FAA issued a NPRM regarding the training and checking of aircraft for ground icing.

On November 4, 1991, the Safety Board made several recommendations regarding airframe icing to the FAA as a result of an accident involving a United Express BA-3101 that crashed at Parco, Washington on December 26, 1989. All six persons on board were fatally injured. The investigation found that an accumulation of airframe ice degraded the aerodynamic performance of the airplane and contributed to the stall and loss of control.

The Safety Board is now investigating an accident involving a Northwest Airline BA-3101 that crashed while on approach to Hibbing, Minnesota. Although the investigation it is still at an early stage, it appears that airframe icing may have been a factor in the accident.

RAILROAD

Improvements in Railroad Safety

The Safety Board has investigated a number of accidents that have highlighted a variety of issues affecting passenger train and freight train safety. As a result of Safety Board recommendations and on-site accident investigations improvements have been made in several areas:

Recently Amtrak issued a contract for over 100 new improved passenger cars to replace and supplement the *Superliners* now in service west of Chicago. Both Amtrak and the contractor contacted the Safety Board requesting a listing of all Safety Recommendations issued concerning passenger equipment so that the safety issues addressed by prior Safety Board investigations would be addressed in the construction of the new equipment. These same safety recommendations were used in another contract awarded recently for the construction of several new passenger cars to replace the *Heritage* equipment with equipment similar to the *Viewliners* that have recently completed demonstration testing.

An accident involving an Amtrak train and a Conrail freight train on April 12, 1991 at Chase, Maryland resulted in the identification by Safety Board investigators of problems in the procedures used in connecting and testing air brake systems on light engine movements. As a result of the Safety Board staff's concern, Amtrak took action to address the immediate problems and implemented a plan to provide for training and qualifying mechanical department employees involved in air brake inspection and testing.

An accident involving a runaway train on the Montana Rail Link on February 2, 1989 at Helena, Montana resulted in a revision to the "Rail Safety Enforcement and Review Act" (PL 102-365) requiring two-way end or train devices on all trains other than local, switchers, and work trains.

Another accident, on the Burlington Northern Railroad Company on April 23, 1990 at Batavia, Iowa also resulted in a revision to the "Rail Safety Enforcement and Review Act" (PL 102-365) requiring that the Federal Railroad Administration initiate a review of the track safety standards and as a minimum include an evaluation of the procedures associated with installation and maintenance of continuous welded rail.

In addition, a number of safety proposals in areas such as: site improvement; inspection of double stack flat cars for floor brace fatigue failures; specific definition of a transit system signal previously undefined; use of derails to protect main tracks at identified industry sidings; and employee safety in work areas along the track have been addressed and accomplished by the investigation of railroad accidents. The Safety Board continues to encourage the railroad and transit industry to strive for better training, inspection, and procedures as a means of reducing accidents and making railroading safer.

As a result of the Safety Board's insistence that all locomotives be equipped with an operating event recorder, the Federal Railroad Administration finally issued a rule on July 8, 1993, requiring that all trains operating at speeds in excess of 30 mph be equipped with an event recorder in the lead locomotive.

HIGHWAY

Fire Apparatus Safety

As a result of the Safety Board's special investigation of fire apparatus accidents, recommendations were issued to the Federal Emergency Management (FEMA) and the International Association of Fire Chiefs (IAFC) regarding fire apparatus maintenance programs, misuse of engine retarders, and the hazards of manual brake limiting valves.

FEMA combined the special investigation report and an earlier Catlett, Virginia recommendation letter as a "Special Report" with wide distribution within the fire service community. The Apparatus Maintenance Section of the IAFC recently issued an "Apparatus Safety Bulletin" to all drivers of emergency fire apparatus addressing the Safety Board recommendations with a copy of the special investigation attached. As a result, Safety Recommendations H-91-003, H-91-006, H-91-008 and H-91-009 have been classified as Closed--Acceptable Actions.

Since the final report was completed, Safety Board representatives have made several presentations to the International Association of Fire Chiefs, Fire Apparatus Maintenance Section, and to the National Association of Emergency Vehicle Technicians. The report has been favorably received in the fire service community and Board staff are having to limit speaking engagements due to resources.

School Bus Safety

As a result of the Safety Board investigation of school bus accidents in Carrollton, Kentucky, involving fire and in Alton, Texas involving submersion, recommendations were issued to the National Highway Traffic Safety Administration (NHTSA) to improve school bus egress. These recommendations addressed the total surface area for egress, the size of school bus side windows, and the need for egress doors to stay open once they have been opened during emergencies. Also, a recommendation was made to the National Association of Directors of Pupil Transportation Services (NADPT) to develop a comprehensive guide on school bus emergency evacuation and rescue.

The NHTSA amended Federal Motor Vehicle Safety Standard No. 217 in November of 1992 to address these recommendations. As a result, Safety Recommendations H-89-5, H-90-74, H-90-77, and -78 have been classified "Closed--Acceptable Action." Also, the NADPT finalized its proposed guidelines on school evacuation and has sent it to the States for ratification.

Further, recommendations to phase out the use of pre-standard (manufactured prior to 1977) school buses, and to purchase only post-standard school buses for passenger transportation purposes were made to the 50 states as a result of the Carrollton, Kentucky investigation.

The Safety Board has received responses from the 50 States regarding the phases out of pre-standard school buses. Fourteen States virtually eliminated the use of pre-standard buses for pupil transportation, 20 States have 2 percent or less in operation, and the remaining States have developed phase-out programs. The Safety Board will continue to monitor the State's progress until the recommendation has been fully accomplished.

Truck Driver Training

Based on the Safety Board investigation of 41 accidents, from 1985 through 1987, involving combination tractors with multiple trailers, recommendations were made to the Professional Truck Driver Institute of America (PTDIA), the American Trucking Associations the Federal Highway Administration (FHWA), and other trucking groups, to develop training programs for drivers of specialized combination vehicles.

A steering committee was created by the PTDIA, under a FHWA contract, to develop a Longer Combination Vehicle (LCV) Training Guide. The Safety Board was the only governmental agency represented on the committee. New training standards resulted based on the Safety Board's previous recommendations. The institute now has completed and produced the training guide for twin-trailer drivers. In addition, a draft of

the Triple-Trailer Driver Training Guide has been completed. These procedural guides have been forwarded to FHWA and are being studied for future required training for LCV drivers.

Heavy Vehicle Airbrake Systems

The Safety Board published a safety study on "Braking Deficiencies of Heavy Trucks in 32 Selected Accidents" in 1988. A recommendation was made to NHTSA to require automatic slack adjusters on all new truck equipped with air brake systems. In April 1992, the Safety Board issued its safety study "Heavy Vehicle Air Brake Performance" with a recommendation issued to NHTSA to expedite the proposed rulemaking requiring automatic slack adjusters.

On October 20, 1992, the NHTSA amended Federal Motor Vehicle Standard 121, Air Brake Systems, to require automatic brake adjusters and visual indicators on all air braked vehicles with external adjustment mechanisms. As a result, the Safety Board has classified Safety Recommendations H-88-30 and H-92-51 as "Closed--Acceptable Actions."

Also, in April 1992 the Safety Board issued recommendations to the NHTSA to require the use of antilock braking systems (ABS) on all newly manufactured vehicle with air brake systems. In 1993, the NHTSA published a Notice of Proposed Rulemaking required ABS on all medium and heavy vehicles (trucks and buses) to improve lateral stability during braking maneuvers.

Work Zone Safety

As the result of the Safety Board's investigation of a multiple vehicle collision and fire in a work zone on Interstate 79 near Sutton, West Virginia on July 26, 1990, and a safety study on "Highway Work Zone Safety", adopted by the Board on May 12, 1992, a total of 17 recommendations were made to the FHWA, 2 to the NHTSA, 4 to the AASHTO, and 7 to the West Virginia Department of Transportation concerning work zone safety. All but one of the responses to these recommendations have been considered acceptable.

As a result of the recommendations to the NHTSA and FHWA, elements of work zone accident data will be better identified and serve as a basis for developing accident countermeasures. The FHWA will conduct research on how best to counter driver inattention using the "design driver" concept, encourage the use of safety devices that alert the human senses, such as rumble strips, and apply intelligent vehicle highway

systems concepts. The FHWA is planning to publish a final rule revising the Manual on Uniform Traffic Control Devices with appropriate changes to address work zones. The Safety Board will monitor the adequacy of the proposed rulemaking activity.

Truck Driver Use of Seatbelts

Each year approximately 1,000 operators of heavy trucks are killed in traffic accidents. Although many drivers are killed when their cabs are crushed, it has been estimated that 26 percent of the drivers killed each year could have survived if they had been wearing three-point restraints.

This estimate does not include the lives of non-drivers that could be saved or the potential for injury reduction attributable to seatbelt use in nonfatal accidents. Further, because most trucks are equipped with lap-only belts, even more lives could be saved if drivers had access to lap/shoulder belts.

Although seatbelt use rates have increased in recent years, a large number of truck drivers still do not wear belts. On April 22, 1992, the Board issued 13 safety recommendations to government agencies and industry organizations directed at increasing belt use among truck drivers. Reasons for nonuse generally center around poor enforcement and inadequate driver education regarding seatbelts. Although, the Federal Highway Administration (FHWA) requires seatbelt use, and this regulation has been adopted by 48 states, enforcement is not generally a priority. The Board recommended that the FHWA and the Commercial Vehicle Safety Alliance (CVSA) actively pursue methods of improving enforcement of this regulation. In addition, the Board recommended that industry groups include information in educational materials about the importance of wearing lap/shoulder belts and develop and implement incentive programs related to lap/shoulder belt use. Overall response to these recommendations has been positive.

The Safety Board recommended that the FHWA complete and expedite the distribution of an educational guide designed to promote truck driver use of lap/shoulder belts. The Board has recently learned that the FHWA has distributed 100,000 copies of this guide and has plans to distribute 50,000 more. In further response to our recommendations, the CVSA, in cooperation with the NHTSA and the FHWA, has instituted a seatbelt use training program for law enforcement officers who interact with the drivers of commercial vehicles.

MARINE

Passenger Vessel Safety*

Large passenger ships, by which is meant ships over 100 gross tons¹, carry millions of people on excursion trips and pleasure cruises from U.S. ports every year. An accident involving one of these vessels always carries with it the risk of a major disaster. For this reason, Passenger Vessel Safety is one of the items on the Safety Board's "Most Wanted" list. Passenger ships operating from U.S. ports may be registered in the United States or in Foreign countries.

U.S.-registered passenger ships operate in the domestic trade, carry U.S. licensed or certificated officers and crews, and must meet U.S. safety standards. There are only a hand full of U.S.-flag passenger ships, two operating in the cruise trade in the Pacific homeported in Hawaii, and a few large excursion boats that operate on rivers, such as the DELTA QUEEN.

Foreign-flag passenger ships operate in foreign trade, carry foreign crews, and meet international safety standards. These international standards are established by an agency of the United Nations known as the International Maritime Organization (IMO). The U.S. Coast Guard is the official representative of the U.S. Government at IMO.

As of June 1, 1993, there were 137 foreign-flag passenger ships regularly operating from U.S. ports. The foreign-flag cruise industry has grown steadily at about 10% per year throughout the 1980s. In 1991, foreign-flag passenger ships carried about 4 million passengers from U.S. ports. The number is expected to reach 7 to 10 million by the year 2000.

Since 1979, the Safety Board has investigated 16 accidents on board foreign-flag passenger ships that regularly operated from U.S. ports. These accidents caused in aggregate 5 deaths, 114 injuries, and more than \$110 million in property damage. In addition to individual accident investigations, in 1989, the Board published a safety study, "Passenger Vessels Operating From U.S. Ports" (NTSB/SS-89/01)². In this study, the Safety Board identified serious shortcomings in the passenger ship safety and issued a number of recommendations to improve the standards for structural fire protection, sprinkler installations, low-level emergency lighting, smoke/fire detection systems, crew qualifications, emergency drills and crew language requirements to ensure the safety of passengers on foreign-flag vessels operating from U.S. ports.

¹ A gross ton is a measure of internal volume. One gross ton equals 100 cubic feet.

² Adopted October 11, 1989

As a result of the Safety Board's recommendations contained in its accident reports and its 1989 safety study, the U.S. Coast Guard was able, in May 1992 and December 1992, to obtain international agreement to require fire safety improvements on all passenger ships. The international fire safety requirements for passenger ships have been virtually re-written, and for the first time, all of the new requirements will be applied to existing ships as well as to new ships. The impact of these new requirements will be dramatic: not only will new ships be built to higher standards, but existing ships will be required to meet these same higher standards or be phased out of service.

Despite these recent major advances in passenger ship fire safety, the Safety Board believes that there are still areas where passenger ship safety may be improved. In July 1993, the Safety Board adopted a special investigation report, "Accidents Involving Foreign Passenger Ships Operating From U.S. Ports 1990-1991" (NTSB/SIR-93/01)³, which reported on the improvements made in passenger vessel safety and which proposed safety recommendations for continued improvement. These recommendations address the need for consistent and appropriate interpretation and enforcement of international requirements as well as the need for improved emergency training and qualifications for shipboard crews. Because many of the IMO requirements are open to wide interpretation, there is no consistency among countries as to how these safety are interpreted or enforced. Crew qualifications and emergency training continue to be prime concerns of the Safety Board because we have seen in accident after accident instances where an improper crew response has worsened an otherwise minor incident to the point where it becomes a situation of serious proportions. In addition, current recruiting practices result in passenger ship crews composed of the nationals from various third world countries. Often there are language problems among crewmembers and between crewmembers and passengers that can have dire results in an emergency. The safety of passenger vessel operations will remain in the forefront of the Safety Board's marine safety program.

Fishing Vessel Safety*

Commercial fishing vessels are the single highest source of fatalities and vessel total losses in the marine operations. For this reason, fishing vessel safety has been selected for the Board's "Most Wanted" list. According to statistics gathered by the National Institute of Occupational Safety and Health (NIOSH), commercial fishing is one of the most dangerous occupations there is; these statistics show that the fatality rate for commercial fishing is 7 times the national average.

As a result of its concern for these vessels, the Board undertook a commercial fishing vessel safety study, which was published in September 1987. This study recommended,

³ Adopted July 6, 1993

that commercial fishing vessels be inspected and that commercial fishing vessel masters be licensed. As a direct result of this study, the Congress passed The Commercial Fishing Industry Vessel Safety Act of 1988 (P.L. 100-424). This legislation required commercial fishing vessels to carry emergency position indicating radio beacons (epirbs), exposure suits, and liferafts. In Alaska in 1992, these devices were credited by the Coast Guard for saving more than 80 lives. In addition, the Act created an industry advisory group to confer with the Coast Guard on safety matters affecting the industry. The Safety Board has representation on the advisory group.

On April 14, 1992, the Safety Board adopted the report of the 1990 sinking of the U.S. Fish Processing Vessel ALEUTIAN ENTERPRISE. The ALEUTIAN ENTERPRISE, a 162-foot-long trawler, was trawling for fish in the Bering Sea when it suddenly capsized and sank. Nine of the 31 persons on board lost their lives and the vessel, valued at \$6 million, was a total loss. This report focused attention on the need for loadlines⁴ for fishing, fish tender, and fish processing vessels, as well as the need for ship stability training for vessel masters.

In September 1992, the Safety Board adopted its report of the capsizing and sinking of the U.S. Fishing Vessel SEA KING near Astoria, Oregon in January 1991. This report restated the Board's position concerning the need for commercial fishing vessel inspection, and safety training for fishermen.

As a result of the Safety Board's recommendations from the fishing vessel study and from subsequent fishing vessel accident reports; the Coast Guard has proposed both a licensing plan and a vessel inspection plan to Congress. The Safety Board is awaiting Congressional action on both plans.

Bridge Resource Management

Bridge Resource Management is a concept that the Safety Board has developed over the course of several relatively recent marine accident investigations⁵. The concept, which grew out of cockpit resource management developed by the commercial aviation community, deals with the effective use of all persons and equipment available to facilitate decisionmaking during critical periods in a navigation watch. The concept stresses the importance of team work and communication among the various watchstanders and

⁴ Loadlines are marked on the sides of ships and indicate the maximum safe depth that the ship may be immersed

⁵ "Grounding of the Greek Tankship WORLD PRODIGY off the Coast of Rhode Island, June 23, 1989", NTSB/MAR-91/01; "Collision Between the Greek Tankship SHINOUSSA and the U.S. Towboat CHANDY N and Tow Near Redfish Island, Galveston Bay, Texas, July 28, 1990", NTSB/MAR-91/03; "Grounding of the U.S. Tank Ship STAR CONNECTICUT, Pacific Ocean, Near Barbers Point, Hawaii, November 6, 1990", NTSB/MAR-92/01; "Grounding of the United Kingdom Passenger Vessel RMS QUEEN ELIZABETH 2 Near Cuttyhunk Island, Vineyard Sound, Massachusetts, August 7, 1992", NTSB/MAR-93/01.

calls for the bridge team to: properly plan, execute, and monitor their vessel's navigation; effectively utilize all resources available; properly prioritize tasks and responsibilities; effectively respond to unexpected situations.

The main problem with the acceptance of this concept in the maritime community seems to be a reluctance to depart from the traditional hierarchal structure of the marine bridge watch to share authority and responsibility. In the past, running a navigation watch on a ship has been a one-person job and that one person has been in a completely authoritarian position. Acceptance of the concept, however, is coming. We have recently received notification from the American Pilots Association that they are advocating bridge resource training for all of their member pilot organizations. In addition, the U.S. Coast Guard and the International Maritime Organization are moving to a position of acceptance of the principles of bridge resource management. The Safety Board expects bridge resource management training to be required for ships' masters and deck watch officers in the near future.

Vessel Traffic Services

The EXXON VALDEZ accident focused national attention on the need for a viable Vessel Traffic Service (VTS) system in the prevention of marine accidents. However, even before the EXXON VALDEZ accident the Safety Board has been in the forefront of efforts to improve VTS in U.S. ports.

As a result of the EXXON VALDEZ accident, the Safety Board recommended that the Coast Guard increase the manning level at the Valdez, Alaska VTS to: (1) plot all participating vessels between the pilot station south of Bligh Reef and their berths in Port Valdez, and (2) provide additional staff to monitor and supervise vessel traffic watchstanders outside normal working hours.

The Coast Guard has complied with these recommendations and is upgrading its vessel plotting system to an electronic charting display that will automatically record the positions of vessels with a satellite-aided tracking system. This action exceeds the Board's recommendation that an additional radar site be located near Bligh Reef to provide better vessel tracking capabilities.

As a result of the Board's investigation of the ramming of the Maltese bulk carrier Mont Fort by the British tankship MAERSK NEPTUNE in New York Harbor in 1988, the Board recommended that the Coast Guard maintain VTS systems in New York, New Orleans, and Valdez. However, the Coast Guard closed the New York and New Orleans VTS systems and cut back the staffing at Valdez. As a result of the Board's June 1989 report of a tanker accident in the Mississippi River, the Board recommended that the Secretary of Transportation re-establish the VTS systems in New York and New Orleans. The Dire

Emergency Supplemental Act of 1989 directed the Coast Guard to re-establish the New York VTS, and the VTS resumed operations in December 1990. Participation by certain vessels in the New York VTS was made mandatory when it was re-established.

The Oil Pollution Act of 1990, enacted as a result of the EXXON VALDEZ grounding, required the Secretary of Transportation to conduct a study to determine and prioritize the ports and channels that are in need of new, expanded, or improved VTS systems. The "Port Needs Study (Vessel Traffic Services Benefits)" was completed in August 1991. The study analyzes historical vessel casualties and their consequences for 23 study zones. The study will help the Coast Guard in developing a strategy for VTS in the United States.

This oil pollution legislation also amended the Ports and Waterways Safety Act making participation in VTS systems mandatory by certain vessels. Currently, eight VTS systems are operational: Berwick Bay, Morgan City, Louisiana; Houston/Galveston; New York; Prince William Sound; Puget Sound; Ohio River in Louisville, Kentucky; San Francisco; and St. Mary's River in Sault Sainte Marie, Michigan. The Coast Guard presently has major VTS projects ongoing in Los Angeles/Long Beach, San Francisco, California; New York, New York; Prince William Sound, Puget Sound; Houston-Galveston, Texas; Berwick Bay, Louisiana; and Detroit/St. Clair, Michigan.

The Coast Guard currently is circulating proposed Federal regulations that will require mandatory participation in the VTS systems in the United States as required by the Oil Pollution Act of 1990. A final rule is expected to be published in early 1994.

The Coast Guard has initiated a long term project called Vessel Traffic Service (VTS) 2000 Overview to provide active vessel traffic management in selected United States major ports and inland waterways. The Coast Guard's functional tasks include enhanced data collection, evaluation and dissemination through an information based architecture based on the utilization of new technology.

The Safety Board can be credited with being a driving force behind these developments.

PIPELINE

Improved Employee Training

In response to the Safety Board's increased focus on the role of employee training in accident prevention, some pipeline operators have responded with new, automated employee training systems. Recognizing the potential cost-saving and employee improvement benefits of this type of training program, the Williams Pipe Line Company

(WPL) developed a computer-based interactive employee training program. Consequently, the WPL has successfully marketed the program for use by other pipeline operators. In addition, the Columbia Gas Company initiated a training and certification program for its gas control dispatchers. The program includes computer simulations that test each dispatcher's skill and knowledge. Columbia has made the dispatcher training and certification a permanent program because of the improvements that have been made in the skills of its dispatchers. Furthermore, the Kansas Power and Light Company implemented a Board safety recommendation by placing all employee training programs under the direction of a qualified person and established a system-wide employee training program based on employee work task analyses. The program also incorporates measurable performance standards and tests or evaluations to determine that each employee meets established training objectives.

On January 17, 1992, a Peoples Gas, Light and Coke Company maintenance crew was performing routine maintenance on a regulator in Chicago, Illinois, when an over-pressure occurred that resulted in four fatalities, four injuries, and damage to 14 houses and three commercial buildings. Based on its investigation of the accident, the Safety Board called for additional training by Peoples, an informational release by the American Public Gas Association (APGA), and reiterated the need for amending RSPA regulations to require annual qualification. Peoples has implemented recommendations sent to them and they are in the process of being "Closed - Acceptable Action." The APGA issued a notice to its members that requested them to review their training programs. In addition, Public Law 102-508 section 106 amended the 1968 Natural Gas Pipeline Safety Act to make training requirements mandatory.

The Need for Performance Criteria

The Safety Board addressed the failure of Federal pipeline safety regulations to provide adequate protection for public safety in its report on five accidents that occurred in 1988 and 1989 in Kansas and Missouri. In that report, the Board found that many regulations that the DOT considers to be performance-oriented requirements are no more than general statements of required actions with no criteria established to measure the adequacy of the actions taken by pipeline operators. The Board found that such regulations make it difficult for pipeline operators to understand what actions are expected of them, and to determine when they have complied with the requirement. These regulations also are susceptible to inconsistent compliance evaluations by State and Federal inspectors and make enforcement of the regulations difficult, if not impossible. Consequently, the Board recommended that the DOT evaluate and amend its pipeline safety requirements to provide regulations that contain both readily understandable safety objectives and specific criteria against which the performance of pipeline operators can be measured uniformly.

This problem was highlighted again during the Board's investigation of the March 30, 1990, petroleum products release from a break in a 10-inch pipeline near Freeport, Pennsylvania. The damaged section of pipe was not located for seven hours. Petroleum products released from the break in the pipeline entered both the Allegheny and Ohio Rivers, disrupting the water supply in many communities for days.

Federal regulations require that pipelines not designed to be fail-safe, and which are located in areas that would require immediate response by the operator to prevent hazards to the public, be monitored from an attended location to detect abnormal operating conditions. As is the case with many other Federal pipeline safety regulations, this requirement does not establish any monitoring system criteria regarding the reliability or the capability to identify the abnormal conditions, or their locations along the pipeline. Consequently, it appears that the seven hours needed to identify the cause of this large drop in pipeline pressure near Freeport, Pennsylvania, did not violate any Federal requirements.

On September 28, 1990, the DOT advised that in cooperation with the states, it will undertake a comprehensive review of the gas pipeline safety regulations to make changes needed to clarify the language, make the regulations enforceable, and correct inconsistencies. This effort is ongoing. On April 7, 1992, the DOT advised that it requested the states to review 49 CFR Part 192 to identify the 20 most significant regulations that have proven to be unenforceable due to their lack of clarity. The National Association of Pipeline Safety Representatives submitted a study detailing the 20 regulations that needed to be clarified and 13 technical corrections. RSPA issued a notice of request for information on November 9, 1993, as a result of the review. The Safety Board will continue to monitor the RSPA's effort in this area.

HAZARDOUS MATERIALS

Tank Car Safety

An urgent safety recommendation was issued to the FRA following the Safety Board's initial on-scene investigation of the catastrophic failure of a pressure tank car filled with 32,000 gallons of liquid propane in Dragon, Mississippi, on January 18, 1992. As the train began moving from a side track to a main track, the end of the tank car separated circumferentially, resulting in the derailment of the car and two other tank cars that also were filled with propane. A white vapor cloud filled the area and ignited into a fireball.

The tank car was of a dual diameter design, manufactured in 1965. The tank had a larger diameter at its midsection than at its end sections, and angled transition sections joined the larger and smaller tank sections. Examination of the circumferential break

disclosed a large preexisting crack that was about 21 inches long and extended through about 95 percent of the tank wall thickness before separation. Five additional tank cars of similar design were examined, and three of the five tank cars had cracks ranging from two to 30 inches.

The Safety Board found that an estimated 6,000 to 7,000 dual diameter tank cars were in the rail tank car fleet and that these tank cars were used to transport such volatile materials as liquified petroleum gases, anhydrous ammonia, and vinyl chloride. Because of the potential catastrophic effects from the type of failure experienced in Dragon, Mississippi, the Safety Board recommended random testing of the fleet, for evidence of cracks and other serious defects in the circumferential welds, to more accurately determine how extensive the problem is, and to assess whether inspections should be required for all dual diameter tank cars. The FRA agreed with the urgent recommendation and issued an emergency order, effective April 4, 1992, requiring dual diameter tank car owners to immediately implement a sampling inspection program. In addition, the Association of American Railroads halted the movement of dual diameter tank cars pending the implementation of the inspection program. By November 1992, the sampling inspection program had been completed, and 40 tank cars were found to have cracks. As a result of these findings, the Safety Board conducted a special investigation on periodic inspection and testing requirements for all tank cars used to transport hazardous materials.

On December 22, 1992, the Safety Board adopted a "Special Investigation Report on the Inspection and Testing of Tank Cars". The Safety Board found that the current DOT requirements for periodically inspecting and testing tank cars are not effective for the detection of structural defects. The report recommended that non-destructive testing techniques be evaluated to determine how such techniques can best be applied for the periodic inspection and testing of tank cars, and that requirements be developed to help ensure the detection of cracks before they propagate to critical length by establishing appropriate inspection methods and intervals considering stress levels and the crack propagation characteristics of the structural component.

On September 16, 1993, the FRA and RSPA published an NPRM that proposes to revise the regulations for inspecting and testing tank cars, including the use of non-destructive testing techniques to detect cracks. Comments on the proposed rule are due by March 16, 1994.

Cargo Tank Fittings

On February 13, 1991, a tank truck loaded with gasoline overturned in a residential area of Carmichael, California, and the resulting fire destroyed four homes. The investigation included a review of the performance of the manway closures on the cargo tank and the minimum safety requirements applicable to manway closures and the DOT's performance

standards for components mounted on manhole covers on tanks carrying hazardous materials. The Safety Board concluded that gasoline was released through an opening in the manhole cover for the front compartment, most likely after a liquid-level sensor was dislodged by a dynamic surge of the gasoline cargo. The Safety Board also concluded that if the liquid-level sensors had been required to meet a performance standard comparable to the static loading standard for the manhole cover, the release of gasoline through the manhole cover may have been averted. As a result of the accident investigation, the Safety Board recommended to the RSPA that all fittings and devices mounted on a manhole cover of cargo tanks meet the same performance standard to withstand the static internal fluid pressure as is required for the manhole cover. The Safety Board also recommended that the NHTSA conduct research of human performance factors that may reduce rollovers in heavy trucks (tractor-semitrailer combinations) as recommended in the Board's 1987 Heavy Truck Safety Study.

On November 5, 1991, the RSPA stated that it will initiate an appropriate rulemaking. On May 21, 1992, the NHTSA advised that it has included funding for the recommended research in its FY94 budget.

The RSPA issued an NPRM on March 3, 1993, proposing that all fittings and devices mounted on manhole covers meet the same performance standard to withstand static internal fluid pressure as is required for the manhole cover. The proposed revision meets the intent of the Safety Board's recommendation. The Safety Board is awaiting the publication of a final rule.

Remote Shut-off Valves on Cargo Tanks

As a result of the Safety Board's investigation of sulfur dioxide released from a tank truck during offloading operations, the Safety Board recommended that the RSPA require remote controls for internal shut-off on all newly constructed and currently authorized DOT specification cargo tanks that are used for the transportation of hazardous materials. The driver of this truck suffered fatal injuries, and 14 other people were taken to a hospital for treatment, when the highly toxic gas was released through a crack in the cargo tank's discharge pipe. The driver could not stop the flow of highly toxic gas into the atmosphere, and 40,900 pounds of sulfur dioxide were released. Remote shut-off valves are required on most cargo tanks, but a remote shut-off valve was not required on the cargo tank involved in this incident. On November 5, 1991, the RSPA agreed with the Board's recommendation and stated that a requirement for remote shut-off valves would be included in a proposed rulemaking.

The RSPA issued a Notice of Proposed Rulemaking (NPRM) on March 3, 1993, that would require remote controls for internal shut-off valves on newly constructed high pressure cargo tanks intended for the transportation of compressed gases, flammable liquids, and other specific high-risk commodities, and on newly constructed insulated

cargo tanks intended for the transportation of any hazardous material (usually cryogenic material). Although the high pressure cargo tanks are normally used to transport compressed gases, the DOT regulations authorize most classes of hazardous materials in these tanks. The NPRM partially meets the intent of the Safety Board's recommendation. However, the Safety Board has advised the RSPA that the requirement for remote controls should apply to cargo tanks currently in hazardous materials service, and not just new construction, and for any hazardous material that can be transported in the tanks. The Safety Board is awaiting the publication of a final rule.

MAJOR PROGRAM DESCRIPTIONS

This section provides descriptions for each of the Board's major programs.

POLICY AND DIRECTION

Policy and direction at the Safety Board is provided by the Offices of the Chairman, Vice Chairman, and Members of the Board, assisted by the Office of the Managing Director, the Office of Budget and Financial Policy, the Office of Government and Public Affairs, the Office of the General Counsel, and the Office of Safety Recommendations.

1. Program Policy Development - To carry out the duties and responsibilities of the Board as prescribed in the Independent Safety Board Act of 1974, the Board Members establish policy on transportation safety issues and problems and on Board goals, objectives, and operations; review and approve all Board reports and safety recommendations; provide appellate review of FAA certificate and civil penalty actions and Coast Guard certificate actions; preside over all public hearings; testify before Congressional committees; act as spokesperson to the transportation industry, other government agencies, and the public; and ensure equal employment practices throughout the Board.
2. Management - The Office of the Managing Director ensures effective implementation of the Board's programs and maximizes efficient use of the Board resources through the coordination and direction of the operations and activities of the staff; development of policies and plans to achieve the Board's programs and management objectives; appointment and supervision of personnel employed by the Board; the distribution of business among such personnel and among the organizational components of the Board; and the proper use and the expenditure of funds.

Within the Office of the Managing Director, the Budget staff develops, prepares and coordinates annual budget requests to OMB and Congress; develops budget and financial policies; recommends the appropriation of allocated funds to Board activities; conducts periodic financial reviews of the operating budgets of the Board's offices; conducts financial audits; and procures and contracts for needed goods and services.

3. Government and Public Affairs - The Office of Government and Public Affairs keeps the Congress and the public informed on the work of the Board and its effort to improve transportation safety. The Office answers oral and written inquiries from the Congress and other government entities, the public, the news media, and the

transportation industry; prepares Congressional and state legislative testimony; provides support to the Member who represents the Board at major accident sites or who testifies before Congress and state legislative hearings; obtains support for Safety Board-sponsored legislation at the Federal, as well as the state and local levels; and generally attempts to improve dissemination of safety information and increase public awareness of the Board's activities in transportation safety.

4. Legal Services - The Office of the General Counsel provides internal advice and drafting assistance on legal aspects of policy matters, legislation, testimony, Board rules, and other matters of legal significance; ensures timely and objective review of airman and seaman appeals from certificate actions and civil penalties; assists the Department of Justice in representing the Board in court proceedings; and provides legal assistance and guidance to the Board's other offices regarding hearings, appearances as witnesses, and the taking of depositions.
5. Safety Recommendations - The Office of Safety Recommendations ensures that the Board issues appropriate and effective safety recommendations to enhance safety in all transportation modes that are clearly written, concise, and answer a demonstrated need; develops programs to increase the degree of acceptance of safety recommendations by recipients; and manages and coordinates the Board's "Most Wanted" Safety Recommendations Program.

AVIATION SAFETY

The Office of Aviation Safety investigates, or causes to be investigated, all aviation accidents and incidents; develops proposed probable cause(s) of accidents; formulates recommendations to minimize their recurrence; and prepares detailed reports for use by other government agencies, Congress, the transportation industry, and the traveling public.

The Office also manages the investigation of major aviation accidents -- those accidents for which multi-disciplinary teams (go-teams) are sent to the accident site. Smaller-scale accidents are usually investigated by one person or a partial team from the Safety Board's regional offices.

The staff of the Office is located in the Washington headquarters and in nine regional and field offices located in major cities throughout the United States. The Office is comprised of six divisions: Major Investigations, Field Operations and General Aviation, Operational Factors, Human Performance, Aviation Engineering, and Survival Factors. These divisions provide the team leaders (Investigators-In-Charge) and some of the group chairmen for the "go-teams" that investigate major accidents and selected incidents.

When the Safety Board is notified of a major accident, it launches a "go-team" which varies in size depending upon the severity of the accident and the complexity of the issues involved. The team consists of experts in as many as 14 different specialties, including materials analysis, operational and environmental factors, systems design and support, human performance, and survival factors. Each expert manages other experts from industry and government in the collection of the facts, conditions, and circumstances surrounding the accident. The participation of these other "parties" greatly multiplies the Board's resources and ensures general agreement over the findings of the investigation, and allows first-hand access to information so that appropriate corrective actions may be taken by the parties.

A public hearing may be convened, or depositions may be taken, to gather additional factual information in connection with an investigation. After the investigation is complete, a detailed narrative report, which analyzes the investigation record and identifies the probable cause(s) of the accident, is then prepared. A major investigation takes anywhere from six months to a year to complete. Safety recommendations emanating from the major investigations generally are included in the final accident report. However, when appropriate, safety recommendations may be issued at any time during the course of an investigation.

Below is a description of the various functions of this office:

1. Major Investigations - The Major Investigations Division provides the Investigator-In-Charge and also coordinates the preparation of the Safety Board's comprehensive aviation accident reports.

The group chairmen, under the direction of the Investigator-In-Charge (IIC), coordinate the efforts of participants in the accident investigations who are provided by industry and other government agencies. Each group conducts an objective and thorough technical investigation of the accident, and produces separate factual and analytical reports that are incorporated into the final Board report on the accident. The reports are likely to include proposed safety recommendations to correct deficiencies found and prevent future accidents from similar causes.

The Major Investigations division also provides the accredited representative for the investigation of civil aviation accidents occurring in other countries. The accredited representative serves as the U.S. representative and assists foreign governments in their accident investigations in accordance with international treaties. The accredited representative informs domestic aviation interests of the progress of an investigation, while providing needed technical expertise, as requested, to foreign governments. Safety issues that are uncovered during such investigations and which may adversely affect U.S. aviation safety or the safety of aircraft or aircraft components manufactured in the U.S., are brought to the attention of the FAA and U.S. industry representatives.

2. Field Operations and General Aviation - The Field Operations and General Aviation Division consists of aviation investigators located in the Board's Washington, D.C. headquarters and nine regional and field offices in major cities across the United States. The division provides support to major investigations and manages the investigation of smaller-scale accidents that usually are investigated by one person or a partial team from the Safety Board. The Division currently investigates approximately 2,500 accidents and incidents annually.

- Field Investigations - Aviation accidents/incidents meeting the Board's accident selection criteria are investigated as "field" accident/incident investigations. They are conducted in a manner similar to a major investigation, but because the investigation is usually much smaller in scope, it often is conducted by a single investigator who, working with representatives from other parties, gathers all of the detailed information pertinent to the accident. During each investigation, investigators must always consider ways to prevent similar types of accidents from recurring through an informal on-scene recommended solution, or

through the Board's formal safety recommendation process. In addition, field investigators provide support to major aviation accidents which occur in the geographic (several state) area of the regional office.

- Limited Investigations - "Limited" investigations generally are conducted for nonfatal aviation accidents in which the aircraft is substantially damaged or destroyed.
- Report Analysis - Analysts located in the Washington headquarters are responsible for reviewing the standardized accident forms and narrative reports prepared by the regional investigators for the public record of the investigation. Computer "brief" reports containing relevant facts, findings, and probable cause(s) and factors are prepared for all field and limited investigations, and summary narrative reports are prepared for selected cases. The data from all investigations is maintained to identify trends, assess program effectiveness, provide statistical support for Safety Board studies and safety recommendations, and support other related safety purposes.

3. Operational Factors

- Air Traffic Control (ATC) - Examines ATC facilities, procedures, and flight handling, including ground-to-air voice transmissions, and develops flight histories from Air Route Traffic Control Center and terminal facility radar records.
- Operations - Examines operational factors involved in the flight operations of the carrier and the airport, and in the flight training and experience of the flightcrew.
- Weather - Examines the meteorological/environmental conditions which may have caused or contributed to an accident.

4. Aviation Engineering

- Power Plants - Examines the airworthiness of aircraft engines.
- Structures - Examines the integrity of aircraft structures and flight controls including the adequacy of design and certification.
- Systems - Examines the airworthiness of aircraft flight controls, and electrical, hydraulic, and avionic systems.

- Maintenance Records - Examines the service history and maintenance of aircraft systems, structures, and powerplants.
- 5. Human Performance - The Human Performance Division examines the performance of persons whose actions may have caused or contributed to an accident, including the person's knowledge, experience, training, and physical abilities; the adequacy of established procedures; work habit patterns; and ergonomics of the equipment design and the potential effects of that design on the operator's performance.
- 6. Survival Factors - Examines factors that affect the survival of persons involved in accidents, including the cause of injuries sustained by occupants of the aircraft involved or other affected persons. The Survival Factors Division also examines safety procedures, crashworthiness, equipment design, emergency responsiveness, crewmember emergency procedures training, and airport certification.

SURFACE TRANSPORTATION SAFETY

The Office of Surface Transportation Safety improves the safety of the public by changing surface transportation policies, practices, and systems in government and industry through independent accident investigations, and through advocacy and oversight.

The Office manages the investigations of major transportation accidents -- those accidents for which multi-disciplinary teams (go-teams) are sent to the accident site. Smaller-scale accidents are usually investigated by one person or a partial team from the Safety Board's regional offices.

The staff of the Office is located both in the Washington headquarters and in regional offices located in major cities throughout the United States. The Office is comprised of six divisions: Railroad, Highway, Marine, Pipeline, Human Performance, and Survival Factors. The modal divisions (Railroad, Highway, Marine, and Pipeline) provide the team leaders (Investigators-In-Charge) for the "go-teams" that investigate major surface transportation accidents and selected incidents. These divisions also coordinate the preparation of the Safety Board's comprehensive accident reports.

When the Safety Board is notified of a major accident, it launches a "go-team" which varies in size depending upon the severity of the accident and the complexity of the issues involved. As with the aviation accidents investigated by the Board's Office of Aviation Safety, these "go-teams consist of experts in various technical specialties, including materials analysis, operational and environmental factors, systems design and support, human performance, and survival factors. Each expert manages other experts from industry and government in the collection of the facts, conditions, and circumstances surrounding the accident.

A public hearing may be convened, or depositions may be taken, to gather additional factual information in connection with an investigation. After the investigation is complete, a detailed narrative report, which analyzes the investigation record and identifies the probable cause(s) of the accident, is prepared. A major investigation takes anywhere from six months to a year to complete. Safety recommendations emanating from the major investigations are generally included in the final accident report. However, when appropriate, safety recommendations may be issued at any time during the course of an investigation. The Office also is responsible for follow-up letters to safety recommendation recipients, once the agency or organization has responded to a Safety Board recommendation.

Below is a description of the various functions of this office:

1. Major Investigations - Each of the modal divisions (Railroad, Highway, Marine, and Pipeline) provides the Investigator-In-Charge (IIC), who manages each major investigation and who also coordinates the preparation of the Safety Board's comprehensive accident reports.

The group chairmen, under the direction of the IIC, coordinate the efforts of participants in the accident investigations who are provided by industry and other government agencies. Each group conducts an objective and thorough technical investigation of the accident and produces separate factual and analytical reports which are incorporated into the final Board report on the accident. The reports are likely to include proposed safety recommendations to correct deficiencies found, and prevent future accidents from similar causes.

2. Field Investigations - Railroad and highway accidents/incidents meeting the Board's accident selection criteria are investigated as "field" accident/incident investigations. They are conducted in a manner similar to a major investigation, but because the investigation is usually much smaller in scope, it often is conducted by a single investigator who, working with representatives from other parties, gathers all of the detailed information pertinent to the accident. During each investigation, investigators must always consider ways to prevent similar types of accidents from recurring through an informal on-scene recommended solution or through the Board's formal safety recommendation process. In addition, field investigators provide support to major accidents. Many of the accidents are investigated in support of one or more of the Board's several safety studies.
3. Human Performance - Examines the performance of persons whose actions may have caused or contributed to an accident, including the person's knowledge, experience, training, and physical abilities; the adequacy of established procedures; work habit patterns, and the interrelationships with management; the ergonomics of the equipment design, and the potential effects of that design on the operational performance.
4. Survival Factors - Examines factors that affect the survival of persons involved in accidents in all transportation modes including the cause of injuries sustained by occupants of the vehicle involved or by other affected persons. Also, examines safety procedures, vehicle crashworthiness, equipment design, and emergency responsiveness.
5. Weather - Examines the meteorological/environmental conditions which may have caused or contributed to an accident.

RESEARCH AND ENGINEERING

The Office of Research and Engineering provides laboratory technical support to the Board's accident investigations, conducts investigations of hazardous materials accidents and incidents (and fire and explosions) in all transportation modes, and conducts safety studies that examine safety issues in all modes of transportation. The Office also is responsible for maintaining the Board's aviation accident data base and specialized surface transportation accident data bases; for providing periodic statistical reviews of aviation accidents; for satisfying public inquiries regarding Board investigations and studies; and for providing computer services and support to all Board organizations.

Below is a description of the various functions of this office:

1. Safety Studies - Evaluates the safety effectiveness of Federal, State, local, and industry transportation safety programs by exploring policy issues, program coverage, and management effectiveness. Studies of major transportation issues also are conducted by analyzing accident data derived from past accidents or special investigations, by analyzing accident statistics, and by studying transportation systems or subsystems to identify and define safety problems. Comprehensive reports containing recommendations for corrective action are prepared for public release.
2. Engineering and Computer Services
 - Voice Recorders - Examines recorded electronic information in the form of radio and video for aircraft, ship, train and supporting systems communications. Provides electronic engineering support for all accident investigation modes in examining communication and control systems, including digital and analog formats.
 - Provides computer and data processing support for all of the Board's organizations. The Engineering and Computer Services staff manage all mainframe and microcomputer hardware and software and all electronic imaging and archiving hardware and software. The staff provide user support and training and design and support the following applications: aviation accident data, surface transportation accident data, safety recommendations, accounting and budgeting, staffing control, correspondence tracking, inventory control, word processing, laboratory scientific data processing and Board-wide networking of computer resources.
3. Materials Analysis - Provides materials engineering support for all modes of transportation in areas such as: (a) fracture, deformation, and failure analysis; (b) chemical composition and strength of materials; (c) characteristics of materials; (d)

design, fabrication, and testing of components; (e) nondestructive inspection; (f) friction, rolling contact, and wear; (g) impact and crash reconstruction; (h) instrument and system component inspection and analysis; and (i) fire and explosion effects.

4. Hazardous Materials Accident Investigation - Manages the investigation of selected hazardous materials accidents and incidents. When hazardous materials safety issues are the overriding safety issues in an accident or incident, for any mode of transportation, an investigator-in-charge may be assigned from this division with appropriate surface or aviation support. The Division also provides technical support to modal accident investigations that involve hazardous materials. This support includes: (a) identifying and documenting the hazard characteristics of materials transported, the threats posed to public safety when those materials are released into the environment, and the consequences of unintentional releases of those materials during transportation; (b) evaluating the level of packaging protection required during transportation in conjunction with the severity of hazards posed; and (c) evaluating the construction, inspection, testing, and maintenance of packaging, and their performance in the transportation environment.
5. Analysis and Data - Manages the aviation accident data base and selected surface transportation data bases and the retrieval and analysis of accident data. Accessible and accurate data are essential to pinpointing areas of safety need, developing insight into the best solutions, monitoring the effectiveness of safety countermeasures, and reviewing the progress of safety efforts. The Division publishes annual reviews of aviation accidents and prepares statistical reviews and analyses of accident data from all transportation modes. It also is responsible for the permanent archiving of accident investigation files and Safety Board reports, and for satisfying public requests for information.
6. Vehicle Performance
 - Data Recorders - Extracts, formats, and analyzes data from digital aircraft flight recorders and recorders installed in locomotives, large ships, and some highway vehicles.
 - Vehicle Performance - Uses advanced computer technology to examine the performance characteristics of vehicles in accidents, including animated three-dimensional vehicular performance studies and complex analytical studies of vehicle dynamics and operation.

ADMINISTRATION

The Office of Administration is responsible for providing timely, responsive administrative support and services to the Safety Board and the public in the following areas:

1. Facilities Management - The purpose of this activity is to manage the physical working environment for headquarters and the Board's regional and field offices.

To accomplish this, the facilities staff must provide telephone services; maintain the inventory of the Board's accountable property; provide printing, graphic, and photographic services; provide internal and external mail and messenger services; and ensure adequate physical security.

2. Accounting - The purpose of this activity is to assure that the Agency's financial resources are properly spent and properly controlled.

To accomplish this, the accounting staff must develop Agency accounting procedures; develop and maintain an accounting system that provides accountability for expended resources; furnish timely external and internal financial management reports; and audit and certify bills and vouchers for payment.

3. Executive Secretariat Services - The purpose of this activity is to provide services to the Board Members and staff regarding the review, distribution, control, processing, and recordkeeping for the major Board documents.

To accomplish this, the Executive Secretariat staff must control, process, and review all correspondence to and from the Chairman; set Board Meeting agendas and maintain records of such meetings; ensure that meetings, public hearings, and Board rules/procedures are noticed in the Federal Register; and produce a monthly newsletter to inform employees about Board activities.

4. Human Resource Management - The purpose of this activity is to effectively manage the personnel program in order to improve productivity and morale, to maintain compliance with Federal laws and regulations, and to maintain a highly skilled, efficient and diversified workforce.

To accomplish this, the personnel staff must recruit and process applications for all vacant positions; actively recruit minority and women candidates for all positions; process personnel actions for all hires, promotions, and salary adjustments; provide employees with employee services and benefit information; review and classify positions to maintain an accurate grade and position structure; and develop and implement personnel programs, such as incentive award programs.

5. Training Management - The purpose of this activity is to develop, manage and implement an effective training program which will improve the skills, knowledge, abilities and, therefore, the productivity of Board employees.

To accomplish this, the training staff must develop training policies, procedures and long range training goals and objectives; be a resource for available training courses; provide administrative support for training conducted by others inside and outside the Board; and design, develop and conduct training courses for Board employees.

ADMINISTRATIVE LAW JUDGES

The Safety Board serves as the "court of appeal" for any airman whenever certificate action is taken by the Administrator of the Federal Aviation Administration (FAA).

Under the Independent Safety Board Act of 1974, the Board's Administrative Law Judges hear, consider, and issue initial decisions on appeals from FAA certificate, license and civil penalty actions taken under Sections 602(b), 609, 901(a)(3), and 501(c) of the Federal Aviation Act of 1958, as amended. Judges' decisions may be appealed to the five-member Board by the airman or the FAA.

The Board's review of the appeal encompasses the transcripts of the proceeding, the Judge's decision, and appeal briefs submitted by the parties.

Under the Equal Access to Justice Act of 1980, as amended (EAJA), the Judges also review and decide applications for attorney fees and expenses from airmen who prevail against the FAA in the adversary adjudications brought pursuant to Sections 609 and 901(a)(3) of the Federal Aviation Act of 1958, as amended.

The final decision of the full Board is subject to judicial review by the U.S. Court of Appeals pursuant to Section 1006 of the Federal Aviation Act of 1958, as amended. The right of appeal to the U.S. Court of Appeals is extended or granted to both the airman and the FAA. Upon review, the Court has the power to affirm, modify, or set aside the full Board's Opinions and Orders, in whole or in part; and if necessary, to order further proceedings by the Board. The judgment and decree of the Court of Appeals is subject to review by the Supreme Court of the United States.

THE ROLE OF THE SAFETY BOARD AND OTHER ORGANIZATIONS IN TRANSPORTATION SAFETY

Within the transportation community, each organization has been established to fulfill a unique role, and, thus, views its accident investigation function from a different perspective. Therefore, each agency investigates accidents to varying degrees of depth and with a different goal in mind. For example, the Safety Board's primary purpose is promoting transportation safety and conducting very detailed and thorough accident investigations, which often uncover significant system-wide problems that must be corrected in order to prevent future accidents. Recommended solutions to correct these problems are proposed to other government agencies and/or industries for implementation.

The Safety Board has no authority to regulate nor is it directly involved in the operation of any mode of transportation. Therefore, it has the unique ability to oversee the transportation system from a totally objective viewpoint and to make recommendations for needed safety improvements without deference to existing policies or regulations. The investigative approach of other organizations, whose primary functions involve both the regulation and the operation of a transportation system or subsystem, serves the specific purpose, as described in the paragraphs that follow, for which they were established. In general, their investigative role differs from that of the Safety Board in that:

- other agencies' investigations generally focus on their enforcement responsibilities, such as determining if a shipper, carrier, or manufacturer has violated existing regulations, rather than on possible changes to regulations that may be needed to prevent similar accidents;
- the persons who conduct the investigations for these organizations often are not specifically trained (or have very limited training) in accident investigation, while the Board's staff is uniquely qualified to investigate accidents and is provided with currency and refresher training in investigative analysis at our accident investigation school;
- the investigations often are narrow in scope or are conducted for data collection or statistical analysis only, and, therefore, cannot be used as a basis for safety improvement recommendations;
- unlike the Safety Board, these organizations do not have a formal safety recommendation process that includes disseminating information and recommendations to other agencies or industry groups whose actions are necessary to effect the recommended safety improvements; and

- the results of other agencies' investigations generally are not published, while the Safety Board issues reports on all accidents for which it determines a probable cause.

An invaluable part of the Safety Board's continuing task is the collection of accident data. Although the Board is considered the primary source for aviation accident data, its approach goes beyond the statistics and beyond establishing probable cause(s). For example, the Safety Board's approach also includes examination of all factors which led to an accident or incident. This is done in order to ensure that those agencies whose role it is to establish transportation policies and regulations are provided with a thorough and objective analysis of both actual and potential deficiencies in the transportation system, as well as proposed solutions to correct these deficiencies.

The National Transportation Safety Board

The National Transportation Safety Board is an independent agency charged with determining the probable cause(s) of transportation accidents and promoting transportation safety. The Board investigates accidents, conducts safety studies, evaluates the effectiveness of other government agencies' programs for preventing transportation accidents, and reviews appeals of adverse certification, license and civil penalty actions by the Administrators of agencies of the Department of Transportation involving airman and seaman.

Most importantly, the Board makes safety recommendations, based on its investigations and studies, to Federal, State and local government agencies and to the transportation industry regarding actions that should be taken to prevent accidents. Safety recommendations are the focal point of the Board's efforts to improve safety in the transportation system.

Historical Perspective

The Board's origins can be found in the Air Commerce Act of 1926, in which Congress charged the Commerce Department with investigating the causes of aircraft accidents. This responsibility fell under the Bureau of Aviation Safety within the Civil Aeronautics Board. In 1966, Congress consolidated transportation agencies into the U.S. Department of Transportation (DOT) and also created the National Transportation Safety Board (NTSB) within the DOT. In establishing the Board, Congress believed that the NTSB would develop a higher degree of safety than separate safety functions in each mode could achieve. Since 1967 the Board has investigated accidents in all modes of transportation including aviation, highway, marine, rail, and pipeline. However, in 1974, Congress made the Board independent of the DOT saying: "No Federal agency can properly perform such functions unless it is totally separate and independent from any

other . . . agency of the United States." Because the DOT is charged with both the operation and the safety of the U.S. transportation system, and because accidents suggest deficiencies in this system, the Safety Board's independent investigative role is essential to the Board satisfying the public's demand for objective oversight of this system. In order to maintain its objectivity, the Board was not given the authority to regulate the transportation industry. Its effectiveness, therefore, depends on its reputation for timely and accurate determination of the cause of accidents and for issuing realistic and feasible safety recommendations.

The most visible portion of the Safety Board's accident investigation role involves the management of major accident investigations. The investigations include the participation of DOT modal agencies and other "parties to the investigations" (vehicle and component manufacturers, operators, employee unions, and State and local government agencies). Such parties to an investigation may have specific conflicts of interest, which prevent them from being totally objective during an investigation. The Safety Board, however, has no conflict of interest, and thereby maintains its objectivity as it manages the experts and parties to ensure a thorough, open, and complete investigation.

AVIATION

The Federal Aviation Administration

The FAA has about 2,575 general aviation and air carrier inspectors who, in addition to their inspection duties, investigate about ten percent of the general aviation accidents. These investigations primarily consist of agricultural, home-built, and experimental aircraft, and some selected accidents not meeting the Board's selection criteria.

Prior to 1982, the Safety Board delegated about 75 percent of all aviation accidents to the FAA but found this procedure unsatisfactory. Because of the enforcement focus of the FAA's investigations, the Board found it necessary to collect additional safety-related information in order to determine the cause of the accident. The FAA investigations were focused on finding operator violations, sometimes at the expense of the inspectors' objectivity. As operations and maintenance inspectors, their primary duties are aircraft and operations inspections, airman testing and certification, and pilot education. Accident investigation is not a major, much less a full-time, assignment for these inspectors. Finally, not all of the FAA inspectors have been trained in accident investigation; for those who have, necessary refresher training has been nearly nonexistent. For this reason, in 1982, the Board significantly reduced the number of accidents it delegated to the FAA.

The Safety Board's Role in Aviation Accident Investigation

The Federal Aviation Act of 1958 and the Independent Safety Board Act of 1974 placed the responsibility for investigating and determining the probable cause of all U.S. civil aviation accidents/incidents with the Safety Board. Although the Safety Board may delegate the actual investigation of the accident, it still is responsible for determining the probable cause.

In addition, the Board is charged to carry out studies, special investigations, evaluations, and assessments of matters pertaining to aviation safety, including human injury avoidance, other agencies' aviation safety consciousness and efficacy in preventing aviation accidents, and the adequacy of safeguards and procedures for transporting hazardous materials by air.

Because of the international nature of the world's aviation industry and the leading role of the U.S. in the technological progress of aviation, the Safety Board's role in the investigation of domestic and international aviation accidents is essential to the enhancement of worldwide airline safety for all persons who travel by air. In fact, the worldwide public reaction to any major air disaster has an adverse effect on U.S. airlines and the confidence of U.S. citizens in the safety of airlines in general.

Further, the Board is charged with fulfilling the U.S. obligations for international aviation accident investigations established by the International Civil Aviation Organization treaty. As such, the Safety Board appoints a leader (U.S. Accredited Representative) of the U.S. team who participates in the investigation of major accidents overseas. These accidents include U.S. airline accidents in foreign territory and accidents involving U.S.-manufactured aircraft operated by foreign airlines overseas. Because the United States maintains a reputation as the world leader in aviation safety, many governments and aircraft industry representatives look to the Safety Board for the results of its investigations and safety recommendations. In addition, because of its advanced laboratory equipment and analysis capabilities, the Safety Board often is called upon by foreign governments to provide expertise in examining data from their aircraft accident investigations. The Safety Board is pleased to provide such services to the extent that it can, and still provide technical support to domestic accident investigations. The Board's major aviation accident reports, safety recommendations, and accident statistics are disseminated worldwide and have a direct influence on the safety of foreign airlines.

A less visible portion of the Safety Board's aviation accident investigation role involves the investigation of non-catastrophic and general aviation accidents. These accidents involve specific issues of special concern to the Board, i.e., air carrier and other large aircraft accidents; fatal and serious injury commuter and air taxi accidents; midair collisions; in-flight breakup or in-flight fire accidents; accidents involving newly certificated aircraft; accidents involving high performance turbine-powered airplanes; and accidents implicating air traffic control services, facilities, or procedures. The Safety Board also investigates

accidents involving property damage only, in which a relatively limited, but highly focused, investigation suffices for data collection purposes. Further, the investigation of selected incidents not meeting the definition of an accident often provides valuable prevention measures to preclude a serious accident from occurring.

RAILROAD

Accident Investigation by the Federal Railroad Administration

The Federal Railroad Administration (FRA) performs field investigations of approximately 150 train accidents/incidents (including highway/rail grade crossing) annually. FRA determines probable cause and publishes a report of its investigation of train accidents/incidents. The FRA requires and maintains detailed reports by railroads of all accidents that exceed a dollar threshold, employee injuries or fatalities and all impacts at highway/rail crossings. These reporting requirements preempt duplicate reporting requirements by states. The FRA has about 330 inspectors from four technical disciplines who may investigate accidents. Training is in-house by technical specialists. The FRA has discontinued training at the DOT's Transportation Safety Institute. FRA train and grade crossing accident investigations are published in a brief format annually, however, FRA has not published narrative employee fatality reports since 1987 investigations were published.

The Safety Board's Role in Railroad Accident Investigation

Since 1966, the primary responsibility for railroad accident investigations has been assigned by Congress to the Safety Board. The Board performs both major and field investigations of selected train accidents/incidents and railroad employee fatalities. Major investigations permit participation from the FRA and other interested parties. They are published in a narrative format. Field investigations, including railroad employee fatalities are published in a brief format. Probable cause is determined in most cases. The NTSB also conducts safety studies which utilize FRA and railroad reports of accidents submitted to the FRA. In other cases, safety studies may be based on an analysis of regulations, railroad safety programs and procedures, audit reviews of management and operation practices, or similar research approaches. In addition, the Board also investigates commuter railroad accidents which are not under the FRA's jurisdiction.

Because of its limited resources, the Board is only able to investigate about 100 accidents/incidents or railroad employee fatalities each year. Safety Board railroad investigators receive both in-house and outside specialized training in accident investigation.

Railroad Accident Investigation by the States

The states participate with the FRA in enforcing Federal standards on track, signal, and train control, locomotive power and equipment, and operating practices. State programs vary in size and scope depending on the number of the railroads operating in the individual state and the funding support provided by the state legislature. In the past, railroad enforcement programs in 30 states were funded through a 50 percent state/50 percent Federal grant arrangement. The FRA no longer funds this program.

HIGHWAY

Accident Investigation and Data Collection by the National Highway Traffic Safety Administration

The National Highway Traffic Safety Administration's (NHTSA) accident investigation role is fulfilled primarily through its data collection efforts. As part of these efforts, NHTSA, in 1979, established the National Accident Sampling System (NASS) program to collect nationally representative motor vehicle accident data, on both fatal and nonfatal accidents, through the investigation of a statistically valid sample of traffic accidents by NASS teams located across the country.

The NASS program is complemented by the Fatal Accident Reporting System (FARS), through which NHTSA collects less detailed information from police reports on all fatal accidents in the United States. The FARS data base, regarded as a census of all fatal accidents, is a completely uncorrected police-reported data base and therefore, contains all the uncertainties and inaccuracies associated with this type of data. This concern with the accuracy of the data collected, particularly occupant protection data, prompted the NHTSA in 1988 to establish two new data collection activities.

A new component of NASS is the Crashworthiness Data System (CDS) which collects data relevant only to the crashworthiness of passenger cars, light trucks, and vans. No data is collected on heavy trucks, motorcycles, or pedestrian fatalities, except when they are involved in accidents with vehicles meeting the selection criteria. NHTSA collects data on about 6,500 accidents annually (700 fatal crashes, 1,500 fatalities/serious injuries and 3,000 to 4,000 tow-away accidents with moderate or less injuries) at 36 CDS sites in 18 states. The new CDS sample is a sample used to project nationwide data.

The General Estimates System (GES), the second new accident sampling systems, is another component of NASS. This system collects data on a wider range of vehicles and is not limited to fatal accidents. The GES program collects data from a sample of police reports involving 50,000 accidents. The data is collected at the 36 NASS crashworthiness sites and 24 additional sites, a total of 60 sites in 24 States.

Accident Investigation by the Office of Motor Carriers

According to the 1990 General Estimates System (GES) data, there were over 42,800 truck/bus accidents. Of those, the Office of Motor Carriers (OMC) conducted a few selective accident investigation and hazardous materials incident investigations. The OMC also assisted the NTSB in some of its investigations.

Commercial vehicle accidents investigated by the OMC include but are not limited to: an accident resulting in multiple fatalities, numerous injuries, substantial property damage, or a combination thereof; or an accident likely to result in widespread public interest, and of which detailed knowledge would be beneficial.

The major benefits attributed to the OMC accident investigation functions are support for the OMC enforcement program, identification and correction of safety problems, and identification of the need for new safety regulations or improvements in existing regulations.

Highway Accident Investigation and Data Collection by State or Local Agencies

State and local police historically have investigated a large number of highway accidents, particularly those in which one or more persons are killed. However, police investigations traditionally have been directed at determining "culpability," and collecting specific sets of facts for law enforcement and damage claim purposes which are not suitable for highway research. In most states, data collection and analysis is both inadequate and inaccurate for sound safety improvement evaluation and planning. Data for vehicle crashworthiness issues in particular are lacking. Other deficiencies include:

- incomplete data bases (e.g., 55 percent of persons treated at hospital emergency rooms were not included in police reports);
- restraint status inaccuracies (incorrect and overstated reports of belt use and type of restraint used. The problem has worsened with advent of seat belt use laws.);
- uncertainties about injury severity;
- lack of injury source information; and
- uncertainties about crash severity.

The Safety Board's Role in Highway Accident Investigation

The Safety Board is responsible for the investigation of highway accidents, including railroad grade crossing accidents, that it selects in cooperation with the states. The Board devotes its limited highway investigation resources to accidents that have a significant impact on the public's confidence in highway safety, generate high media and/or public interest, or that concern technical safety issues which cause or contribute to accidents or injuries on a national scale.

The Board also conducts safety studies of significant highway safety issues often based on a set of accident investigations specifically undertaken as the basis for the study. In other cases, safety studies may be based on an analysis of regulations, highway safety programs and procedures, audit reviews of management and operational practices, or similar research approaches.

The objectives of the Board's highway program are carried out through (1) the multi-disciplinary, in-depth investigation of major catastrophic accidents involving multiple fatalities or substantial property damage, (2) noncatastrophic accident investigations conducted in support of selected highway safety emphasis areas, and (3) special investigations concerning a predetermined subject selected in support of a safety study. As in other modes, the end result of these highway efforts are actions taken by Federal, state, or local agencies, or industry, often emanating from specific Safety Board recommendations to reduce the likelihood or recurrence of transportation accidents, and to make the transportation of persons and property as safe and free from the risk of injury and damage as possible.

MARINE

Accident Investigation by the Coast Guard

The Coast Guard has the authority to investigate commercial vessel accidents which occur in U.S. waters or involve U.S. vessels. Although most Coast Guard investigations normally are informal in nature, the agency occasionally convenes a one-person formal investigation or a formal Marine Board of Investigation. A Marine Board of Investigation is undertaken only in the most serious major marine accidents. Safety Board investigators normally participate in both types of formal investigations. Because of the limited staff available to handle the high number of reportable accidents, the Coast Guard has been forced to conduct less in-depth investigations. The Coast Guard now has the authority to investigate accidents involving large foreign-flag passenger vessels (i.e. cruise

ships) operating from U.S. ports and carrying primarily U.S. passengers when accidents occur in international waters, but thus far has not attempted to use this new authority, relying instead on participating in investigations conducted under international rules.

Recreational Boating Accident Investigation by States

About 900 lives are lost each year in recreational boating accidents. Recreational boating accidents are, for the most part, investigated by the states in whose jurisdiction they occur. State programs for boating accident investigations, and for recreational boating safety in general, vary widely. For example, in some states boating accidents are investigated by the Fish and Game Warden while other states have separate police units for marine matters. State investigation of alcohol use in accidents also varies widely, although many states have made progress in adopting a uniform procedure for addressing this issue. Since 1971, the Coast Guard has been empowered to provide grants-in-aid to the states in an effort to promote uniformity and cooperation regarding boating safety and accident investigation.

The Coast Guard recently has focused its efforts on improving state reporting of accidents for inclusion in the national data base which is published yearly in "Boating Statistics". In particular, both the Coast Guard and the states have agreed that improvements are needed in the uniform reporting of alcohol-related boating accidents, and the National Association of State Boating Law Administrators is working with the Coast Guard to promote these improvements.

The Safety Board's Role in Marine Accident Investigation

Federal marine safety standards came into being before the Civil War, and commercial marine accidents have been investigated by the Federal government since 1871. Before 1966, the U.S. Coast Guard was exclusively responsible for these investigations. When the Safety Board was established in 1966, it was authorized to review Coast Guard investigations and determine the probable cause(s) of those accidents. In 1974, the Safety Board was authorized to investigate marine accidents involving public and non-public vessels and major marine accidents under joint regulations with the Coast Guard. In 1981, in order to preclude any appearance of a conflict of interest on the part of the Coast Guard, the Safety Board and the Coast Guard agreed that, in accidents involving significant safety issues relating to Coast Guard safety functions, the Safety Board may conduct an independent investigation and hearing, with full cooperation by the Coast Guard. The 1981 agreement also stated that the Board would conduct independent investigations of Coast Guard and non-public (commercial) vessel accidents.

Other than the National Transportation Safety Board and the Coast Guard there are no agencies, Federal or State, that have the authority to investigate commercial vessel accidents in U.S. navigable waterways. The Marine Division of the Safety Board consists of eight investigators with an average of more than ten years experience in marine accident investigations and more than 20 years of additional varied experience in the marine field.

Generally, the Coast Guard investigations focus on enforcement, but they will on occasion result in prevention recommendations. Safety Board investigations are directed primarily towards developing safety improvement recommendations while determining the probable cause(s) of an accident. Furthermore, the Safety Board has an extensive monitoring system to ensure that implementation of the recommendations is not delayed or forgotten.

The Safety Board, because it is independent and not directly involved in regulation of the industry, has been the catalyst in moving the Coast Guard and other organizations to improve marine safety by requiring certain equipment, improving procedures, and improving vessel design. It sometimes seems that a catastrophe must occur before the Coast Guard takes action to make safety improvements. The Safety Board, however, is continually promoting safety improvements through its reports. Resulting Safety improvements were identified and recommendations were made as the result of the investigations of fires on the following foreign passenger ships: SCANDINAVIAN SEA, SCANDINAVIAN SUN, SCANDINAVIAN STAR and the EMERALD SEA explosion and fire. There were two deaths and 15 injuries on those four vessels before the 158 fatalities in the SCANDINAVIAN STAR fire in the North Sea. Many of the recently revised international fire safety standards incorporate the improvements sought by the Safety Board.

Of the approximately 4,000 reportable accidents involving commercial vessels and the approximately 6,500 serious recreational boating accidents that occur each year, about 60 to 70, on average, accidents fall within the investigative jurisdiction of the Safety Board (i.e., \$500,000 in property damage; six or more lives lost; or the total loss of a self-propelled vessel of more than 100 gross tons; or accidents that involve public and non-public vessels with \$75,000 in property damage or at least one fatality). However, because of limited resources, the Board is able to independently investigate only about four (5 percent) of these accidents each year.

In addition, the Board investigates about three accidents per year jointly with the Coast Guard, and requests that the Coast Guard investigate the remainder for the Board. In the latter case, the Board determines the probable cause of the accident based on an analysis of the evidence collected and submitted by the Coast Guard.

As in the other transportation modes, the Safety Board also conducts safety studies involving specific marine safety issues. These may be based on previous Safety Board accident investigations, or on analytical reviews of marine regulations, practices,

procedures, and standards. Similar to accident investigations and safety studies in the other modes, marine safety studies result in the issuance of safety recommendations to Federal and/or state agencies, private industry, and industry associations.

PIPELINE

Accident Investigations by the Office of Pipeline Safety and by the States

More than 1.6 million miles of pipelines carry natural gas and hazardous liquids to more than 47 million customers in the U.S. The regulation and inspection of this vast network of pipelines and the investigation of accidents for enforcement purposes are shared in a complex pattern of responsibilities among the Office of Pipeline Safety (OPS) of the U.S. Department of Transportation (DOT) and a variety of state agencies. The enforcement of Federal pipeline safety regulations on interstate facilities, including the investigation of accidents, is the responsibility of the OPS. However, given the enormous size of the pipeline system, OPS inspectors located in five regional offices share this responsibility, through a variety of arrangements, with state agencies.

There are a number of limitations on the usefulness of the OPS and state accident investigations. For example, although the OPS requires that a written report be prepared for those accidents investigated by state agency personnel, the state is not required to file these reports with the DOT. Furthermore, despite the fact that the OPS provides general guidance on the types of information that should be included, there is no established format for the preparation of the report nor is there a set time interval after the accident within which the report must be completed.

For accidents investigated by OPS personnel, reports of the investigations are completed in a uniform format and are filed in the regional offices and headquarters, but they are not published. These OPS investigations also provide very little support for safety improvements, as they focus more on determining whether or not Federal regulations were violated. Additionally, these investigations provide no oversight of OPS programs and only limited oversight of state programs.

Nevertheless, the Board has noted substantial improvements in these agencies' accident investigation capabilities in recent years, and the services rendered to the Safety Board by these inspectors often have been invaluable. These improvements are largely due to upgrading of the qualification standards used by the states for inspection personnel and to the higher quality and more widespread training that state personnel are now receiving from industry organizations and the DOT.

Because the bulk of pipeline accident data is, of necessity, recorded by state agencies, the Safety Board believes that the usefulness of State accident reports for improving the safety of pipeline transportation could and should be enhanced by: (1) establishing clear reporting criteria for use by the states; (2) requiring that the state reports be centrally filed; and (3) implementing a data base for these state-produced accident data. Currently, the only data on pipeline accidents that are required to be submitted to the DOT and that are stored for computerized analyses are the industry-prepared leak reports. The valuable resource of state accident reports is not being used to identify emerging safety problems and how to minimize their consequences.

The Safety Board's Role in Pipeline Accident Investigation

The Safety Board is responsible for investigating all pipeline accidents in which there is a fatality or substantial property damage. In addition, the Board also investigates pipeline accidents involving selected accident prevention issues. Under its Memorandum of Understanding with the DOT's Office of Pipeline Safety (OPS), the Board can delegate to the OPS the investigation of accidents that occur when the Board is unable to respond due to insufficient resources. The Board has also developed informal means to enlist investigative assistance from several selected state agencies.

In 1992, preliminary data indicated there were 412 pipeline accidents reported to the OPS under its criteria. These accidents generally involved a death or hospitalization, property damage of more than \$50,000, or the release of the transported material into the environment. Three accidents were investigated in depth by the Safety Board, each involving a fatality, substantial property damage, and significant safety issues. The remainder of these accidents were investigated to some degree by the states or the OPS.

The Safety Board selects for investigation by its personnel those pipeline accidents that provide the greater opportunities to address industry-wide safety issues and those related to emerging technologies within the pipeline industries. Of those accidents most likely to be selected as a major Safety Board investigation, are those that pose significant threats to the environment, that involve pipeline employee qualifications, and that involve inadequacies in the Federal or state pipeline safety regulatory programs.

Liquid pipelines transport about 54% of this Nation's petroleum, and many of the products when released during accidents can significantly threaten the environment, wildlife, other transportation activities, and community water supplies. Recent liquid pipeline accidents have emphasized that while they do not cause large numbers of human casualties (5 fatalities and 38 injuries in 1992), they result in dollar losses, environmental damages, and disruptions to communities disproportionate to other pipelines. Moreover, such losses have not been equitably considered in developing safety standards on detecting abnormal pipeline operations and systems for minimizing the quantity of products released

from pipe failures. Safety Board investigations of such accidents are being used to better define and document safety improvement needs to more promptly identify pipe failure occurrences and means to more promptly control petroleum product releases.

Increased employee turnover and the incorporation of more highly technical operating and monitoring equipment within the pipeline industries have caused the pipeline industries to include new training programs and technologies to provide knowledge generally obtained during years of supervised on-the-job experience. Computer interactive and computer based training programs offer significant potential to improve current training methods; however, their effectiveness when used as the primary method of training has not yet been adequately demonstrated. Safety Board investigations will assess the effectiveness of training programs that incorporate these newer training methods to better define their effectiveness and to identify needed enhancements.

Although common to all pipeline accidents, some accidents present superior opportunities to develop information on the affect of the OPS and/or state pipeline safety regulatory bodies for enhancing pipeline safety. In addressing this aspect of pipeline safety, the Safety Board performs an essential oversight responsibility and is often best able to identify regulatory, inspection, and enforcement program improvements that, when implemented, will result in more effective pipeline safety regulations and more efficient program operations.

HAZARDOUS MATERIALS

Accident Investigations by Administrations of the Department of Transportation (DOT) and by States

About 4 billion tons of regulated hazardous materials are shipped each year with more than 500,000 shipments of hazardous materials entering into this Nation's transportation system daily. Responsibility for the regulation, inspection, and enforcement of the transportation of these hazardous materials shipments is shared in a nonuniform manner among the DOT's modal administrations, RSPA, and the states. The modal administrations are generally responsible for shippers and transporters with some responsibilities being shared with the states. RSPA is responsible for issuing the hazardous materials regulations, and for inspecting shippers and manufacturers of shipping containers that are of a multi-modal nature. The responsibility for investigating transportation accidents is similarly diversified.

The Safety Board's Role in Hazardous Material Accident Investigation

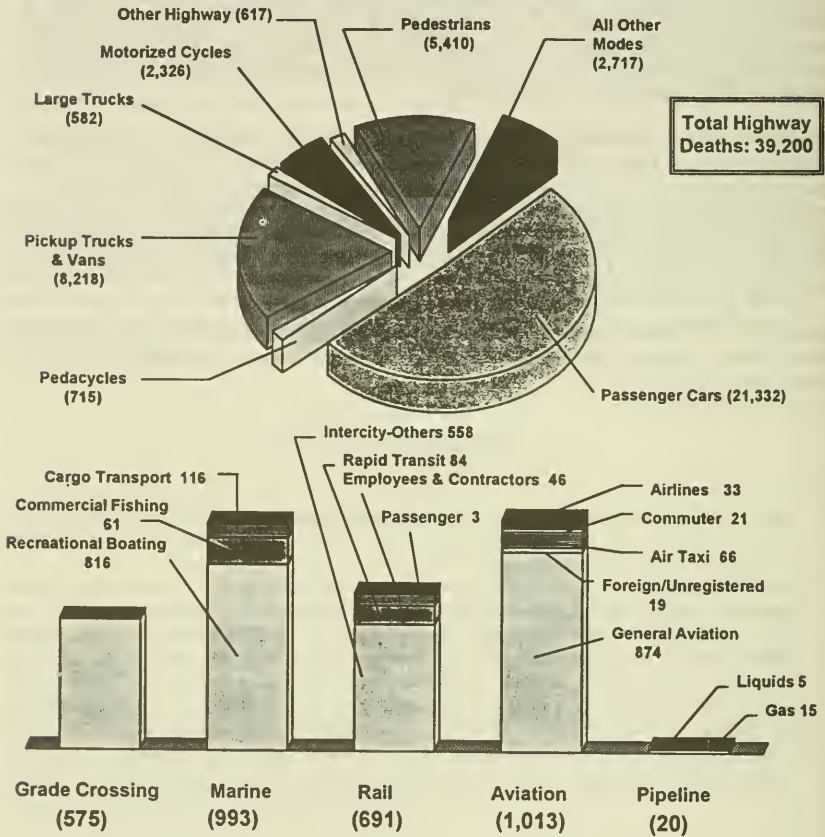
The Safety Board is responsible for investigating accidents that involve threats to public safety arising from accidents involving hazardous materials, or when the release of hazardous materials causes death, serious injury, or major disruption within communities. In addition, the Safety Board investigates accidents involving the transportation of hazardous materials to provide further evidence of the need for implementing previously identified safety improvements. As a result of its investigations, safety recommendations are made to reduce the risk of similar accidents causing the release of hazardous materials and catastrophic consequences.

There were 9,294 hazardous materials incidents reported to the DOT's Research and Special Programs Administration in 1992, including 7,740 highway, 1,128 rail, 420 air, and six water incidents. These incidents resulted in sixteen fatalities, 587 injuries and \$30.6 million in damages. In the ten-year period from 1983 to 1992, 111 fatalities, 3,297 injuries and over \$238 million in damages were reported. For the five-year period, between 1985 through 1989, 106,011 people were evacuated because of railroad accidents alone, involving hazardous materials.

Because of the limited resources available in Hazardous Materials Division, only two to three major accident investigations and five to eight limited investigations can be conducted annually.

National Transportation Safety Board

41,917 Transportation Fatalities in 1992



Notes: (1) All figures are preliminary estimates;

(2) Grade crossing fatalities were counted in rail and highway categories

ACCIDENT SELECTION CRITERIA

The Board investigates aviation, railroad, highway, marine, pipeline, and hazardous materials accidents. Under its accident selection criteria, the Board's investigative response will depend primarily on the following factors: 1) the need for independent investigative oversight of certain specified areas to ensure public confidence in the transportation system; 2) the need to concentrate attention and resources on the most significant and life-threatening safety issues; and 3) the need to maintain an adequate data base on which trends can be identified and projected.

Aviation

1. Oversight/public confidence:

- a. All Part 121 and 135 accidents (includes: commercial passenger service, newly-formed airlines, FAA surveillance of air carrier operations and maintenance activities, and Part 135 operators with multiple accident histories).
- b. Foreign aircraft accidents involving U.S. airlines; U.S.- manufactured transport aircraft; or major U.S.-manufactured components (e.g., engines) on transport aircraft.
- c. Accidents involving air traffic control.
- d. Accidents involving flight training or crew experience as potential factors.
- e. Midair collision accidents.
- f. Accidents involving newly-certificated aircraft (first accident or less than 10 years old).
- g. Accidents involving newly-certificated engines.
- h. Accidents involving in-flight fire.
- i. Accidents involving in-flight breakup.
- j. Accidents that expose the public to high risk, involve substantial property damage, or attract high public interest.

2. Selected emphasis areas:

- a. General aviation accidents with elements common to Part 121/135 operations (e.g., aircraft typically used in Part 121/135 operations; Part 121/135 training flights, etc.).
- b. All fatal general aviation accidents.¹
- c. Commercial passenger flight incidents with safety improvement potential.

¹ The Safety Board, through a letter of agreement with the FAA, delegates the investigation of all agricultural, home-built, and experimental category aircraft accidents to the FAA. However, for those cases in which the FAA does not accept a delegated accident, the Safety Board must perform the investigation. Additionally, other categories of Part 91: fatal aircraft accidents, with no apparent safety improvement potential may be delegated to the FAA.

- d. Air traffic control incidents with safety improvement potential.
 - e. Aging transport aircraft accidents.
3. Statistical needs: All general aviation accidents, except those delegated to the FAA per the letter of agreement.

Railroad

- 1. Oversight/public confidence:
 - a. Any collision between trains that results in an employee fatality, serious injury to two or more employees, in damages of \$500,000 or more to railroad and/or non-railroad property.
 - b. Any passenger or employee fatality.
 - c. Hospitalization of a train crewmember or passenger.
 - d. Any accident resulting in explosion, fire, or release of hazardous materials resulting in an evacuation.
 - e. Any rail/highway grade crossing accident involving three or more fatalities, hazardous materials release, or a failure of crossing protection equipment.
- 2. Selected emphasis areas
 - a. Advanced Train Control Systems.
 - b.. Locomotive Crashworthiness.
 - c.. Fatigue/Work/Rest Cycle of employees in safety sensitive positions.
 - d. Passenger Car Crashworthiness
 - e. Passenger Car Standards

Highway

- 1. Oversight/public confidence:
 - a. Highway bridge safety (collision vulnerability and structural deficiencies).
 - b. Motor carrier oversight by Federal and State agencies.
 - c. Transportation of school children.
 - d. Intercity bus safety.

2. Selected emphasis areas:

- a. Adequacy of passive restraints.
- b. Driver fatigue in commercial vehicles.
- c. Grade cross accidents involving commercial, public transportation vehicles.
- d. Child passenger safety.
- e. Specialty Bus Safety.
- f. Effects of NAFTA on commercial vehicle safety.

Marine

1. Oversight/public confidence:

- a. Loss of six or more lives.
- b. Loss of a self-propelled vessel of over 100 gross tons or damage to any vessel exceeding \$500,000.
- c. Serious hazardous materials threat to life, property, and environment.
- d. Coast Guard safety functions (e.g., Vessel Traffic Services, search and rescue operations, vessel inspections, aid to navigation positioning/lighting, etc.).
- e. A public and non-public vessel collision or other accident with one or more fatalities or \$75,000 or more in property damage.

2. Selected emphasis areas:

- a. Large passenger vessels including ocean cruise ships and excursion vessels, ferries, and harbor excursion boats.
- b. Small passenger vessels carrying more than six passengers.
- c. Bridge Resource Management.
- d. Tankships and tank barges.
- e. Fatigue and hours of service on all vessels.
- f. Commercial Fish Vessel Accidents.
- g. Collisions and groundings involving oceangoing vessels.
- h. Inland Tow Vessel Rammings.

Pipeline

1. Oversight/public confidence:

- a. One or more fatalities.
- b. Property damage exceeding \$500,000.
- c. Extensive release of highly volatile liquids.
- d. Significant damage to the environment.

2. Selected emphasis areas:

- a. Accidents where consequences could have been reduced by use of an excess flow valve.
- b. Failure of aging pipe systems.
- c. Accidents involving human performance issues.
- d. Accidents involving recognition or response delays.
- e. Major environmental damages resulting from product release.

Hazardous Materials

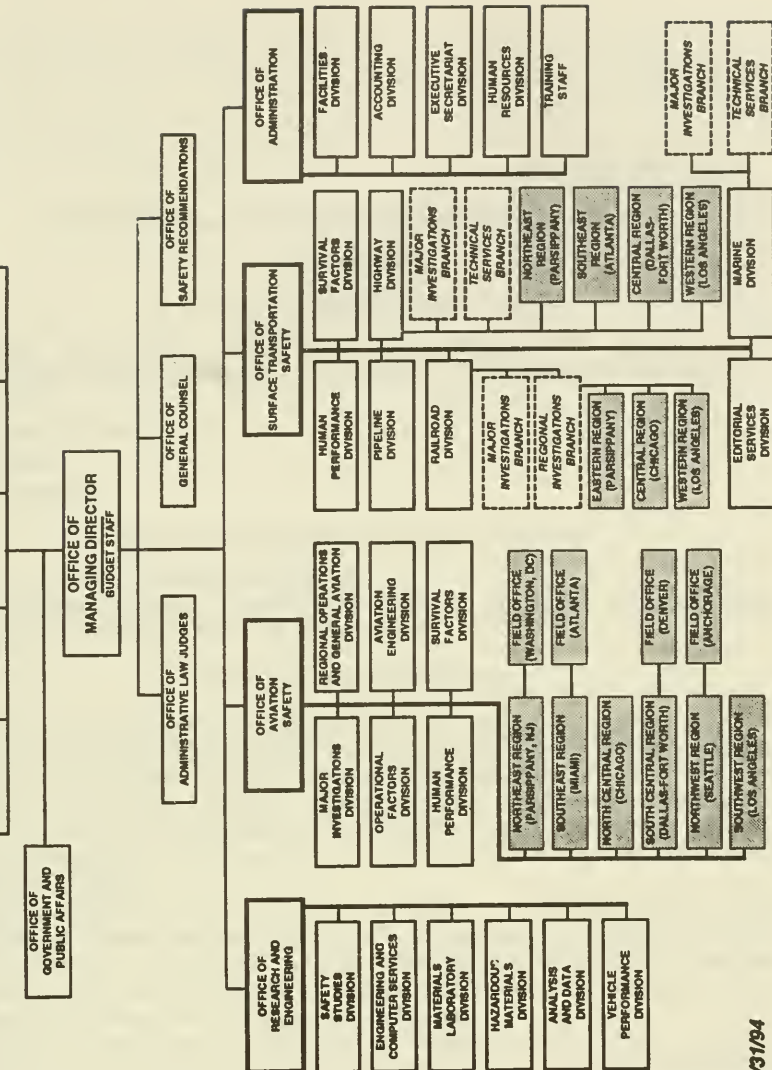
1. Oversight/public confidence:

- a. Fatalities or serious injuries by the release of hazardous materials.
- b. Major evacuations of the public or major disruptions to a community's normal functioning due to the threats caused by a release of hazardous materials.

2. Selected emphasis areas:

- a. Non-collision container failures.
- b. Failure of containers under accident conditions in which the containers reasonably should have been expected to survive.
- c. Cargo transfer operations.
- d. Unusual or unexpected behavior of hazardous materials.
- e. Mis-identified or non-identified hazardous materials.
- f. Emergency response difficulties because of the unexpected behavior of hazardous materials involved in an accident or the lack of adequate information about cargo or containers involved in an accident.

NATIONAL TRANSPORTATION SAFETY BOARD



1/31/94

TUESDAY, APRIL 19, 1994.

FEDERAL AVIATION ADMINISTRATION

WITNESSES

U.S. GENERAL ACCOUNTING OFFICE

KENNETH M. MEAD, DIRECTOR, TRANSPORTATION ISSUES, RESOURCES, COMMUNITY, AND ECONOMIC DEVELOPMENT DIVISION

ALLEN LI

MARY ANN KRUSLICKY

BOB LEVIN

BOB WURSTER

FEDERAL AVIATION ADMINISTRATION

DAVID R. HINSON, ADMINISTRATOR

GENE CONTI, DEPUTY ASSISTANT SECRETARY FOR BUDGET AND PROGRAMS, OFFICE OF THE SECRETARY

INTRODUCTORY REMARKS

Mr. CARR. Good morning. Today, we are going to receive the testimony on the fiscal year 1995 budget request of the Federal Aviation Administration, and the request totals \$8.8 billion, which is about a 1.8 percent increase over the funding provided last year. Virtually, all of the request is for facilities and equipment. By contrast, operating funds requested are \$4.58 billion, a hard freeze compared to 1994.

Under this hard freeze, the FAA staffing would decline by 1,272 full-time positions, on top of a 1,438 reduction in staff under way this fiscal year. It is clear that the challenges facing the FAA this year are many and we hope to get into some of these issues today and possibly tomorrow, if we need the time.

The first witness today will be Ken Mead of the General Accounting Office, and after the GAO's presentation we will hear from our new FAA Administrator, David Hinson.

Ken, I want to welcome you and your colleagues back to the Committee. Once again, thank you for all of the help and the support that you have been to the Subcommittee in carrying out its function over the years. Your statement will be put in the record in full, and the Committee will review and retain your annual status report of the modernization programs which we appreciate very much.

If you would proceed with your oral statement, first by introducing your colleagues, most of whom are also friends of the Committee and we know them well. We are glad to have all of them here, but, Ken, would you make the formal introductions, and then proceed with the highlights of your testimony.

Mr. MEAD. Thank you, Mr. Chairman. And thank you for the kind words. My colleagues, Mary Ann Kruslicky, Al Li, Bob Levin, and Bob Wurster.

We would like to start off just by saying that appearances before the Committee over the past couple of months outlined the three mega budget issues facing the Department, which I would say were first the funding of the ISTEAL legislation and the demonstration projects; second is Amtrak; and third is this advanced automation system, which we will be getting into in a moment.

I will summarize the statement. Our testimony will touch on the ATC modernization effort, downsizing the work force, the AIP program and several issues we see in research and development for aviation security. The thrust of our testimony is to promote cost-effective decision-making at FAA. This seems appropriate because after years of budget growth, FAA is entering an era of no growth budgets and trust fund expenditures will exceed tax receipts.

ATC MODERNIZATION

Mr. Chairman, you just alluded to the issuance of our fifth annual report on the modernization program, and with the exception of the very serious problems with the advanced automation system, to which I will return in a moment, progress this year on the other components of modernization was mixed. In fact, there were a number of bright spots, though I think through the press accounts they were perhaps overshadowed by the difficulties with AAS.

As a frame of reference, nearly 50 percent of the \$36 billion required for modernization through 2001 has already been appropriated. And of the 12 major projects in the modernization program that we track, six have achieved first site implementation and three more are scheduled for this year or next.

Except for AAS, cost increases and schedule slippages were not as great as in the past. Another item of good news is that the obligation rates improved and the combined cost of the 12 major projects actually declined. That was due to FAA's decision to substantially reduce the number of microwave landing systems being procured. That reduced costs by about \$2 billion. Unfortunately, that reduction will not be of much help to you this year, because the money was not going to be spent until the turn of the century anyway.

We also found that FAA was giving more scrutiny to new starts. Of the 31 proposals developed for fiscal 1995, 35 percent were actually withdrawn. On the negative side, we saw some signs that FAA was at risk of losing momentum in its efforts to improve acquisition management. For example, we found that agency officials have difficulty telling us how they decide where to site equipment and how benefit/cost information is factored into those decisions. Guidance for risk management plans, of crucial importance given this program's troubled history, is still not complete.

ADVANCED AUTOMATION SYSTEM

Now, I turn to AAS, which of course is the centerpiece of the modernization program. It is experiencing a great deal of difficulty that goes to both cost and schedule. Late last year, December, I think it was, FAA announced a \$1.2 billion increase, which raised

the cost to about \$5.9 billion. More recently, a candid FAA task force said costs would likely rise another billion. That brings the total to \$7 billion, and to take you back in history a bit, in 1988, when the contract was signed, the estimate then was a little over \$4 billion. So it has gone from \$4 billion to \$7 billion.

AAS SCHEDULE

A projected schedule delay of about 20 months for the system's major component, which is the ISSS, it stands for initial sector suite system, would put it roughly 4 years behind schedule. And we can get into the causes and implications of all this in the Q and A if you wish, but I want to just highlight a couple of points.

The first is that government acceptance of this, the ISSS component, ought to be deferred until all key functions are tested out satisfactorily. The current plan calls for acceptance before the test system is tested out to ensure that it will continuously operate. We do not think we should be accepting anything until it is tested out and we are sure it will work.

Second, unless the costs of this AAS system are reduced, they will crowd out other modernization projects. A \$1.2 billion cost increase cannot simply be absorbed. And, third, it is likely that other AAS phases, like those dealing with the terminals, will be restructured and downsized.

Now, a concern here is that in the process of restructuring the AAS, will costs simply be transferred to some other project and some other contractor? I think the positive is the attention given by the Administrator, Deputy Administrator, and their team. They have really taken AAS in the last several months by the horns. But there is a real quandary for the Committee because the budget request was prepared at a time when FAA thought it was proceeding along a certain course. The ground shifted and now you have to make an appropriation decision and we do not know exactly what AAS will look like or how much it will cost or what the ultimate schedule will be. So you are going to need a plan that provides you a road map with that.

WORK FORCE REDUCTIONS

I will move to work forces. An overall point here relates to work force reductions. The downsizing will be about 12 percent, or 6,500 people. FAA thinks 2,500 to 3,000 employees may take advantage of the buyout this year. In fact, 2,300 have already elected to do so and if GAO's experience with the buyout authority we had is any indication, this will be quite successful.

There is an opportunity here, a good one, for FAA to decide on the appropriate distribution and mix of staff amongst its many facilities. That is going to require a strategy that the committee will need to have and an underpinning of that strategy will require a decision about how many staff are actually needed at the individual facilities and the appropriate span of supervisory control over controllers.

You may know that the Vice President spoke of a generic 1 to 12 ratio. On the controller work force, it is often 1 to 6 or 1 to 7. We are not sure that [a] 1 to 12 span of control would be applicable to the controllers.

The issue of how many ATC staff are needed by facility is one this committee has been asking FAA for years. It can no longer be postponed and you are still waiting for an answer, I believe.

As FAA reduces the work force, we think training issues will also become exponentially more important, and FAA has an initiative under way to overhaul its training program. We think that is good because a smaller, less experienced work force is going to have to have adequate training.

AIRPORT IMPROVEMENT PROGRAM

Let us move to the AIP program. The budget for that is pegged at about \$1.7 billion. I think you all know that FAA faces billions more in demands for AIP money than it can possibly satisfy, even when you consider the passenger facility charge, which we think will generate about \$750 million in fiscal year 1995.

Well, the AIP is another program where FAA could significantly improve its decision-making. Some examples: When FAA directed airports to get security access systems, it did not realize exactly what it was requiring, nor did it realize what the cost implications of what it was saying would be. They had a program that rose from a \$170 million estimate to about a half billion dollars and the costs are not all in yet.

Second example. FAA overcommitted AIP funds approved under so-called "letters of intent," and FAA did not ensure they were used only for projects that significantly enhanced system-wide airport capacity, which is the requirement that you put in the law. We found examples where these LOI funds went to water treatment projects and for projects at airports where fewer than one-tenth of 1 percent of U.S. passengers were enplaned annually.

And, third, in the case of AIP set-aside funds for reliever and military airports, you may know the AIP program has two specific set-asides for those. FAA cannot tell you what these projects are achieving, or even could achieve in terms of their intended objectives, most notably to relieve congestion, and that type of analysis would help Congress decide whether reliever and military airport funds ought to be redirected or the program tailored down a bit.

FAA has told us they will take action to address all these concerns. A key will be whether they follow through.

SECURITY RESEARCH AND DEVELOPMENT

And finally, I would like to mention our work on security research and development. The R&D budget is about \$268 million, and roughly \$36 million of that is going to security research. The law following Pan Am 103 set ambitious milestones for the development of explosive detection devices but FAA will probably need another two to five years to develop a device that meets standards.

The research to develop the blast-resistant luggage containers is a lot more promising, a lot further along, and we expect design specifications out by the end of 1994. But there are a couple of issues lingering in the wings here that we wanted to alert the committee to.

These explosive detection devices are not cheap. I will give you a frame of reference. They may cost up to about a million dollars apiece. There is a question about who is going to pay for these de-

vices. And there is now pending before the Congress a bill that may be before you for a vote in a few weeks that would authorize the tapping of the airport improvement grant funds for those devices, and that prospect would have big, important financial implications for the AIP program, and it is also a possible shifting of responsibility from the airlines to the airports.

Regardless of who is to pay, though, it will be important that these devices perform reliably in an airport environment, not just a laboratory. And we are not satisfied that FAA's current testing philosophy will achieve those objectives, and certainly the experience with FAA's modernization program underscores the importance of testing out what we are buying before we commit to a large production or before we mandate it on the airlines or the airports or whomever.

The fact somebody other than the Federal Government may end up paying for these security devices is irrelevant in our view. The issue is regardless of who pays, these devices ought to work properly and we will be glad to answer any questions, Mr. Chairman.

Mr. CARR. Well, thank you, Mr. Mead.

[The prepared statement of Mr. Mead follows:]

United States General Accounting Office

GAO

Testimony

Before the Subcommittee on Transportation and
Related Agencies, Committee on Appropriations,
House of Representatives

For Release on Delivery
Expected at
10:00 a.m. EDT
Tuesday
April 19, 1994

FAA BUDGET

Agency Faces Key Management Challenges on Major Issues

Statement of Kenneth M. Mead
Director, Transportation Issues
Resources, Community, and
Economic Development Division



GAO/T-RCED-94-191

Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to testify on the Federal Aviation Administration's (FAA) budget and programs. At just over \$8.8 billion, FAA's fiscal year 1995 budget request represents a 2-percent increase over the fiscal year 1994 appropriation. This includes \$2.3 billion for facilities and equipment (F&E); \$4.6 billion for operations; \$1.7 billion for the Airport Improvement Program (AIP); and \$267 million for research, engineering, and development (RE&D). About \$6.6 billion will be charged to the Airport and Airway Trust Fund; the remaining \$2.2 billion will be charged to the General Fund. At these levels, outlays would exceed trust fund receipts from user fees that are estimated at under \$6 billion for fiscal year 1995. Accordingly, the fiscal year 1995 budget would continue the trend of drawing down the trust fund balance.

Against this financial backdrop, FAA faces significant challenges. How FAA meets these challenges will have profound effects on airports, airlines, and the traveling public. Our testimony today will focus on issues associated with the air traffic control (ATC) modernization program, work force operations in a period of downsizing, the use of Airport Improvement Program (AIP) funds, and research and development efforts for detecting explosives. The information we are presenting is based on the reports and testimonies we issued in the past year, our ongoing work, and information provided by FAA. Our relevant reports and testimonies are listed in appendix III, including the annual status report on modernization that we issued to this Subcommittee last week. Our major points are as follows:

- In its ATC modernization program, FAA faces several challenges as the agency tries to (1) complete long-standing F&E projects and (2) improve its acquisition management. The agency will have to address the cost and

schedule problems that the Advanced Automation System (AAS)--FAA's largest acquisition--continues to encounter. Problems and recent developments affecting AAS will have important implications. For example, completing the system as planned could crowd other projects out of the F&E account unless AAS costs are reduced or total F&E funding is increased beyond current levels. Progress this past year with other major modernization projects was mixed. FAA met scheduled implementation dates for two major systems--the Airport Surface Detection Equipment radar and the Mode Select radar--but did not meet schedules for two others--the Air Route Surveillance Radar and the Terminal Doppler Weather Radar. FAA is also facing the challenge of improving its management of acquisitions. For example, we found that agency officials cannot explain how they rank sites for the receipt of the facilities and equipment or how benefit-cost information was factored into those decisions.

- The most critical challenges FAA faces in the operations area will be reducing its work force by 12 percent (about 6,500 employees) and administering its buyout authority. In doing so, FAA must ensure that the reductions do not have a negative impact on safety and do not drain technical expertise critical to its mission. Of particular note is the need to ensure the appropriate supervisory span of control over controllers, to downsize overstaffed ATC facilities, and not to aggravate staff shortages at understaffed facilities. Work force reductions have already begun, but the agency does not yet have a strategic or tactical plan for addressing staffing imbalances and ensuring the appropriate distribution and mix of staff among its many facilities.

-- FAA faces the challenge of making sound investment decisions for the AIP. FAA has billions of dollars more in demands for AIP funds than its funding levels allow. We have reported on shortcomings in the agency's approach to deciding where to invest scarce funds in the most cost-effective manner. The corrective actions we have recommended to FAA include (1) establishing program goals to help guide FAA's investment decisions and also act as benchmarks for measuring progress and (2) ensuring that the AIP letter-of-intent funding mechanism is used only to fund projects that will significantly enhance systemwide capacity, as required by statute. FAA officials told us that they plan to take action in these areas, and it is important that the agency follows through. We will monitor FAA's progress. Also, in our ongoing work on the set-aside funds for reliever airports and the Military Airport Program, we have found that FAA is not analyzing the extent to which projects are achieving--or can achieve--their intended objectives, such as relieving congestion. Such analysis could help FAA determine if the AIP funds need to be redirected.

-- At the request of the Subcommittee, we are examining FAA's efforts to develop new equipment to detect explosives. This effort consumes about \$36 million of the about \$267 million in the fiscal year 1995 requested RE&D budget and will continue at comparable funding levels for the immediate future. Our work shows that FAA may need 2 to 5 more years to develop and approve a device that meets standards for detecting explosives in checked baggage. The Congress is now considering legislation that would permit airports to purchase explosive detection equipment with AIP funds. If enacted, this legislation would represent a shift in responsibility from airlines to airports and would have significant cost implications for the AIP program.

Regardless of who pays, the devices will need to work reliably at airports. However, we found that FAA's approach to certifying new equipment will not ensure reliability.

FACILITIES AND EQUIPMENT ACCOUNT

FAA is seeking \$2.269 billion in F&E funds this year to sustain and modernize the nation's ATC system, a 7-percent increase over the fiscal year 1994 appropriation of \$2.12 billion. Although FAA received large increases in the F&E account throughout the 1980s and early 1990s, that trend has not continued in the last 2 years, as shown in appendix I. The administration has proposed an authorization level of \$2.5 billion for fiscal years 1996 and 1997. It is becoming clear that the F&E account will not return to the high rate of growth it had in prior years.

The cost and schedule problems facing FAA with the AAS are well known to this Subcommittee and the aviation community. Other major F&E projects we report on each year have also experienced cost and schedule difficulties, as we have just reported to this Subcommittee.¹ At this time last year, FAA planned to have four major systems deployed in the field: the Air Route Surveillance Radar (ARSR-4), the Airport Surface Detection Equipment (ASDE-3) radar, the Mode Select (Mode S) radar, and the Terminal Doppler Weather Radar (TDWR).² Delays from problems uncovered in systems testing have delayed the fielding of both the ARSR-4 and the TDWR. Although most funds have been appropriated and obligated, FAA and aviation system users must wait to receive benefits from these

¹Air Traffic Control: Status of FAA's Modernization Program (GAO/RCED-94-167FS, Apr. 15, 1994).

²The ARSR-4, ASDE-3, Mode S, and TDWR are radars that will be used by FAA for surveillance or weather detection. For more complete descriptions, see Air Traffic Control: Status of FAA's Modernization Program (GAO/RCED-94-167FS, Apr. 15, 1994).

systems. FAA has implemented the first Mode S in Baltimore and the first ASDE-3 in Seattle. Unfortunately, such problems as ghost images delay use of the ASDE-3 at other sites.

By meeting several challenges, FAA can improve its acquisition management and positively impact long-standing F&E projects.

FAA Can Further Improve Its Acquisition Management

Over the last several years, FAA has undertaken several acquisition reform efforts--initiatives such as requiring mission need statements to start acquisitions and the performance of operational testing before committing to full production.³ We can report that FAA has made some progress. For example, in response to our 1993 report,⁴ FAA has given greater scrutiny to mission need statements. Of 31 mission need statement proposals developed for the fiscal year 1995 budget cycle, 11 (35 percent) were withdrawn by program sponsors because they could not quantify a need or because the proposals were a low priority.

Although FAA has improved its mission need statements, our ongoing work for this Subcommittee indicates that further improvements in its acquisition management are still warranted. One area for improvement is FAA's decision-making for siting facilities and equipment. Each year, FAA is confronted with decisions on where to locate equipment for systems that have already been developed--such as instrument landing systems (ILS) and the ASDE-3--and decisions on which terminal facilities should be replaced. Various FAA offices ask for more terminal facilities

³FAA has reported lack of adequate policies and procedures for major system acquisitions as a material weakness under the Federal Managers' Financial Integrity Act.

⁴Air Traffic Control: Justifications for Capital Investments Need Strengthening (GAO/RCED-93-55, Jan. 14, 1993).

and equipment funding than the agency's budgetary resources can fund. For example, in fiscal year 1994, FAA funded only \$361 million, or 32 percent, of \$1.1 billion in internal agency requests for terminal facilities and equipment. Sound business management practices dictate that FAA should acquire facilities and equipment for those locations where it is most cost-effective to do so.

In our ongoing work for this Subcommittee, we are evaluating how well FAA makes these siting decisions. We found that agency officials cannot explain how they rank sites for the receipt of the facilities and equipment or how benefit-cost information was factored into those decisions. Moreover, FAA has limited documentation supporting its decisions. FAA project sponsors--operational groups responsible for determining facilities and equipment needs--told us they have basically divided available dollars for terminal projects in roughly equal measure among FAA's nine regional offices, usually resulting in each region's top priority candidate site being funded. We expect to report shortly on issues relating to FAA's siting criteria.

We found other areas for improvement in FAA's acquisition management, as discussed below:

- After 2 years of effort, FAA has not completed its acquisition tracking and management system. As a result, FAA acquisition oversight officials were not able to provide us with a list of projects by acquisition phase. Until this system is fully operational, FAA officials responsible for acquisitions cannot readily analyze a project's acquisition history to help evaluate its status.
- FAA has not developed guidance to implement its revised acquisition policy order. For example, guidance for risk management plans is still being developed. Such plans should identify the areas of greatest risk with a project

and allow FAA to develop an approach to mitigate those risks. FAA officials estimate that it could take 3 more years to complete the various guidance needed to fully implement its new order.

- FAA has experienced a high turnover rate for its most senior acquisition executive, who is charged with overseeing acquisition policy and program execution. Since 1990, four different people have held the position of Executive Director for Acquisition and Safety Oversight. Although it is difficult to measure the effects of this turnover, we believe that large and complex acquisitions such as the AAS and the Voice Switching and Control System (VSCS) require stable leadership.
- In two cases, FAA has not provided the Congress with the most current and accurate project cost estimates developed in the acquisition process. We found that the total acquisition cost estimates for the Aviation Weather Products Generator and the Integrated Terminal Weather System are twice the estimates provided in FAA's budget justifications. By not including the most recent cost information in its budget, FAA may limit the ability of the Congress to make sound investment decisions.

FAA announced last week that George Donohue from Rand Corporation will soon join FAA to evaluate FAA's internal process for managing acquisitions, systems development, and new technology. We look forward to the results of that evaluation.

FAA Can Make Decisions That Have Positive
Impacts on Long-Standing F&E Projects

Long-standing F&E projects still constitute a major share of the F&E budget. The AAS and the VSCS alone account for about one-

third of this year's budget request. FAA is still living with the effects of decisions made on these projects in the 1980s. Nevertheless, our work for this Subcommittee shows that FAA can better ensure that it meets the needs of the agency and users of the ATC system in a cost-effective manner--particularly with the AAS, the Microwave Landing System (MLS), and the VSCS.

Advanced Automation System

Over the years, we have reported to the Congress on the serious cost and schedule difficulties that have affected the AAS--FAA's largest acquisition. As we testified before the House Subcommittee on Aviation last week,⁵ despite several FAA management initiatives, the AAS problems continue and, without corrective action, may worsen. Last year, FAA announced a \$1.2-billion cost increase, raising the total cost of the AAS project to \$5.9 billion, compared with the 1988 estimate of \$4.3 billion. As a result of the problems with the AAS, the agency recently commissioned several reviews to support decisions on the project's future. In a candid report, FAA's AAS Task Force estimates that the agency may need an additional \$1 billion to complete system development and implementation.⁶ The report also projects a likely schedule delay of 20 months for the Initial Sector Suite System (ISSS), which would put it over 4 years behind schedule.

The cost and schedule problems with the AAS have resulted from several technical and managerial factors. First, FAA and IBM's development and implementation plan--including cost and schedule estimates--was overly ambitious given the highly demanding requirements and the complex software architecture for this system.

⁵Advanced Automation System: Implications of Problems and Recent Changes (GAO/T-RCED-94-188, Apr. 13, 1994).

⁶Review of Cost and Schedule for the Advanced Automation System Program, Federal Aviation Administration, Mar. 3, 1994.

Second, FAA did not provide adequate oversight of IBM's performance, especially during the initial development of the key ISSS component. As a result, IBM's lack of progress did not always surface in a timely manner. Third, FAA changed requirements and was indecisive in resolving some issues about basic requirements, such as the format of new electronic flight data strips to be used by controllers. In our opinion, the above factors--not inadequate funding or federal procurement or personnel rules, as contended by some proponents of an ATC corporation--have caused the problems with the AAS.

Problems and recent developments affecting the AAS will have several important implications:

- First, the bulk of the benefits to users have been delayed because of the schedule extension. These benefits are expected mostly from a new automated capability, Automated En Route Air Traffic Control (AERA). FAA planned to implement the AERA in the last component of the AAS, the Area Control Computer Complex; however, the agency now intends to include an early version of the AERA--albeit limited in capabilities--in the ISSS.
- Second, because the scope of the system has been reduced as a result of FAA's plans for limited consolidation as well as strategic automation, the agency will have to acquire additional automated systems to enhance ATC facilities and airspace that were expected to be supported through the AAS.
- Third, unless development costs are reduced or the Congress increases FAA's funding, completing the system as planned could crowd out other modernization projects. The \$1.2-billion unanticipated increase in AAS funding will need to be absorbed in fiscal years 1996 through 1999 under the

project's current course. If the cost or the scope of the AAS is not reduced, the high annual funding levels for the AAS could crowd out other modernization projects at that time. Newer F&E projects will be the most vulnerable since contracts will not be in place.

- Fourth, if the 20-month schedule delay for ISSS projected by the AAS Task Force becomes a reality, the agency may need to initiate interim measures--such as replacing, at a cost of \$60 million, existing display channel equipment in its en-route ATC facilities.
- Fifth, the agency faces the risk of additional costs to fix the system if FAA follows the current plan to accept parts of the ISSS before all critical requirements are met. FAA's current plan anticipates accepting the ISSS hardware and software following testing scheduled for completion by November 1994. Under this schedule, key functions--such as continuous operations--would not have undergone testing by the time the first increment of the ISSS is accepted. As the AAS Task Force stated, once the government has formally accepted the system, it becomes considerably more difficult to require the contractor to bear responsibility for system performance. Necessary corrections to achieve needed performance are likely to entail additional costs to FAA.

The coming months will be critical from the standpoint of restructuring FAA's automation program. We have made recommendations to ensure that future investment decisions on the AAS are based on sound information, meet the needs of ATC system users, and allow the agency to use F&E funds in the most cost-effective manner. Specifically, we have recommended that the Secretary of Transportation direct the FAA Administrator to

- defer governmental acceptance of the ISSS until all critical operational requirements are met and
- submit a report to the Congress, before the administration proposes its fiscal year 1996 budget for FAA, that describes a comprehensive automation plan--including time frames, funding levels, and all interim and long-term actions necessary to satisfy user needs and FAA's ATC and flow management requirements.

Microwave Landing System

For many years, FAA planned to replace all of its ILSs with almost 1,300 Microwave Landing Systems (MLS), at a cost of \$2.6 billion. In mid-1993, FAA decided to procure only 255 Category II and III MLSs because the Global Positioning System (GPS), enhanced by ground equipment, could support all types of precision approaches to runways. In our report on precision landing systems to this Subcommittee, we recommended that FAA analyze its need for precision landing systems in general to determine which system--ILS, MLS, or a satellite-based system--or a mix of systems could provide the most benefits at the lowest cost to both FAA and the system's users.⁷ FAA's recent actions are responsive to our recommendation and to the needs of the aviation community. Because of this change, the total estimated cost for the MLS has decreased by approximately \$1.9 billion. This cost reduction will help save F&E funds in the long-term and will help airlines avoid unnecessary investments in MLS avionics.

⁷Airspace System: Emerging Technologies May Offer Alternatives to the Instrument Landing System (GAO/RCED-93-33, Nov. 13, 1992).

Voice Switching and Control System

FAA and the Department of Transportation (DOT) also face key decisions on the \$1.4-billion VSCS. In early 1993, FAA and the Department approved the limited production of the first 5 of 25 VSCSs, including a system for the first field site in Seattle--the same first site FAA has chosen for the ISSS. The contractor will deliver the VSCS in two phases. The first will work with existing controller consoles; the first-site implementation is scheduled for April 1995. During the second phase, the contractor will upgrade the system to work with the ISSS.

In December 1993, FAA completed operational testing at its Technical Center of the most recent developmental version of the VSCS. Test reports stated that the system is "potentially operationally suitable" and recommended a full-production decision for VSCS hardware. However, the reports pointed to several serious risks, including immature software, a backlog of software problems, and a substantial amount of software that still needs to be integrated and tested--approximately 150,000 lines of code. Additionally, more VSCS hardware needs to be tested.

The Department's Transportation Systems Acquisition Review Council (TSARC) met in March to assess VSCS readiness for full-production of the remaining 20 systems. The TSARC has withheld authority for full production until satisfactory completion of operational testing of the first phase of the VSCS in January 1995. However, the TSARC has allowed FAA to begin ordering one additional VSCS per month. We do not believe it is wise for FAA to order more systems at this time given the amount of work still needed on VSCS. If the contractor continues to produce additional systems, we believe FAA will have less leverage with the contractor. This could result in FAA's having to pay for changes needed to make the system meet requirements. A more prudent approach would be to wait until the key capabilities are proven through operational testing.

FAA FACES SIGNIFICANT CHALLENGES
IN STREAMLINING ITS OPERATIONS

FAA's requested appropriations of \$4.58 billion for operations is about the same as its fiscal year 1994 appropriations. The operations account funds the salaries, benefits, and training of such FAA work forces as air traffic controllers, safety inspectors, and security personnel (see app. II). As a result of the President's initiatives for reforming government and the National Performance Review (NPR), between now and fiscal year 1999, FAA must reduce its work force by 12 percent (about 6,500 employees), its senior level employees, and its layers of management. FAA has several initiatives under way to accomplish these reductions. These include streamlining its organizational structure, reducing the span of control by increasing the employee-to-supervisor ratio, imposing a hiring freeze, and offering voluntary early retirements with financial incentives (buyouts). FAA estimates that about 2,500 employees could take advantage of the buyout this fiscal year.

To meet the President's and NPR's goals, FAA had said that it would exclude its safety work force from any reductions. However, FAA is offering certain members of the safety work forces a financial incentive to retire. FAA is offering financial incentives to (1) all first-line controller supervisors and all controllers at low-activity towers (level-1), (2) inspector and aircraft certification supervisors and managers, (3) maintenance technician supervisors and managers, and (4) all security employees. FAA excluded controllers at other than level-1 facilities, inspectors, and maintenance technicians from the buyouts.

FAA Must Carefully Assess the Impact of
Streamlining Options on Its Operations

If FAA does not manage release dates of employees accepting early retirement under the buyout proposal, it could lose a disproportionate number of employees in key positions and facilities, and the loss most likely would not be uniform throughout the organization. In addition, although the buyout could decrease staff at overstaffed field facilities, it could also increase shortages at understaffed field facilities. On the basis of its staffing standards, FAA already has staff shortages--the controller work force is understaffed, for example, by 1,533 at 302 facilities, and the inspector work force is understaffed by 580 at 65 field offices.⁸ Thus, further reductions could exacerbate an already tenuous situation. In addition, FAA plans to contract out the operation of about 100 level-1 towers--25 this fiscal year and the remainder over the next 3 fiscal years. However, FAA has not assessed the impact of allowing the controllers at such towers to retire before FAA contracts out their operations. For example, at one tower, 4 of 11 controllers are eligible to retire this year. If they all retire, the tower would be 30 percent below its prescribed staffing, which could adversely affect its operations. Overall, 18 level-1 towers would face staffing shortages if eligible controllers retire.

Although FAA has not established a specific deadline, the agency expects to develop a strategic and tactical plan within the next few weeks to address the staffing shortages that may result from the buyout. This plan would be most effective if it were to identify (1) specific facilities affected by the reductions, particularly those that are critically affected; (2) milestones for

⁸FAA is revising its controller staffing standards and expects to significantly reduce the number of controllers needed.

overcoming staffing shortages; and (3) funding required to staff facilities at their prescribed levels.

Likewise, FAA has initiated a review of its inspection and certification staff as part of its streamlining efforts. FAA has directed its nine regional offices to examine, among other things, establishing work priorities and providing full-service offices for inspection and certification responsibilities. According to the Director, Flight Standards Service, the primary emphasis of the review is to ensure the appropriate mix and allocation of inspectors. Additionally, the review will examine opportunities to reduce management layers, improve diversity among the work force, improve the supervisor-to-employee ratio, and reassign inspection and certification responsibilities to other offices. We recently reported that FAA did not have the appropriate mix of certification staff, and as a result, the agency did not understand the new and emerging technologies it was asked to certify.⁹ For example, we found that the ratio of industry software designees to FAA staff responsible for certifying new aircraft software systems was 19 to 1, but the ratio in the propulsion area, which has seen far less technological change, is 7 to 1. FAA officials have acknowledged the need to improve the mix of certification staff and expect to develop options to improve the inspection and certification staff by September 1994.

In addition to reducing its total work force, FAA must also reduce senior-level employees. In doing so, FAA plans to have more employees per supervisor (span of control). However, FAA has not assessed the impact of changing the span of control on its operations. For example, one air traffic facility reorganized in early 1993 and reduced the number of supervisors. Subsequently,

⁹Aircraft Certification: New FAA Approach Needed to Meet Challenges of Advanced Technology (GAO/RCED-93-155, Sept. 16, 1993).

operational errors at the facility increased from 9 in 1992 before the reorganization to 13 in 1993 after the reorganization--a 44-percent increase. Although FAA could not definitively establish a cause and effect relationship between the increase in operational errors and fewer supervisors, it did cite the reduced level of supervision as a contributing factor for the increase.

Improved Training Could Help Minimize Potential
Streamlining Consequences on FAA Operations

As efforts to downsize and streamline operations continue, FAA needs to improve its training programs to ensure that the smaller, less experienced work forces can effectively conduct the agency's activities. Although FAA has undertaken ambitious initiatives to upgrade its training system, it has not resolved long-standing problems with its training program, and training problems continue to trouble the FAA work forces.

Since the mid-1980s, FAA, DOT's Office of the Inspector General, and GAO have examined FAA's training programs and found serious problems. The problems cited in these reports included a fragmented training organization with poorly defined lines of authority, responsibility, and accountability; a lack of long-range planning for training requirements that resulted in the budget process determining training; an ineffective training curricula; and a lack of appropriate training evaluation. On the basis of these findings, in 1988 FAA established a centralized training office and developed a Flight Plan for Training outlining the initiatives and projects needed to improve training for all its work forces.

However, the Flight Plan has received limited funding, and little progress has been made in implementing the plan's projects. FAA has spent about \$81 million on the projects, or 29 percent of the \$282 million in Operations funding FAA initially estimated was

needed to complete the initiatives. In fiscal year 1995, FAA proposes spending about \$6.9 million on the Flight Plan initiatives, a decrease of over \$3.5 million, or 34 percent, of the fiscal year 1994 funding for the Flight Plan. Moreover, of the 76 Flight Plan projects, 46 are still ongoing, 22 have been terminated, and only 8 have been completed.

Today, FAA is again embarking on an ambitious initiative to upgrade and modernize its training system. In 1992, FAA created the Technical Training Management System to devolve responsibility for managing training from the centralized training office to each service organization. The basic concept under the new system is that "true-need" training, broadly defined as the training an organization must do to carry out its mission, must be fully funded either from the centralized training budget or from the organization's operations budget. However, our ongoing work for the Senate Subcommittee on Aviation shows that the service organizations have received little guidance on how to implement the system. For example, FAA's currently approved training order dates back to December 1974, and the organizations must rely on word of mouth and meeting minutes to identify changes to training policy and procedures. As a result, the methods for determining training requirements vary considerably among the organizations, widespread confusion exists within organizations as to what constitutes true-need training, and the new system is still not fully implemented. Moreover, FAA has not established mechanisms to monitor and evaluate how the service organizations meet their training needs and how their training programs improve operations. Finally, the centralized funding organization created to maintain accounts for training funds allocated to each service lacks the internal control procedures to ensure that only authorized persons execute transactions. For example, any service organization official can have funds transferred between subaccounts.

Despite FAA's initiatives to improve its training programs, problems continue. For example, FAA recently acknowledged that it did not adequately train its air traffic controllers in the operational capabilities of airborne traffic-alert collision avoidance systems. We recently reported that FAA's aircraft certification staff were not effectively involved in the certification process because FAA's training had neither kept pace with new technological advances nor provided its staff with the assistance and training needed to ensure competence in new technologies.¹⁰ In addition, annual enrollments in courses between 1991 and 1993 have averaged about 19 percent below training quotas, indicating that FAA cancels many courses or staff do not show up for scheduled training. We expect to report later this year on these and other issues affecting FAA's training program.

AIRPORT IMPROVEMENT PROGRAM ACCOUNT

FAA's budget request sets a \$1.69-billion obligation limitation for the AIP--the same level enacted for fiscal year 1994. The AIP account funds capacity, safety, security, and noise mitigation projects. Almost 3,300 airports designated by FAA as critical to the national airport system are eligible for AIP funding. FAA has identified about \$40 billion in development needs at these airports between 1990 and 1999. These needs far exceed available AIP funds and Passenger Facility Charge revenues that also fund airport improvements.¹¹

¹⁰Aircraft Certification: New FAA Approach Needed to Meet Challenges of Advanced Technology (GAO/RCED-93-155, Sept. 16, 1993).

¹¹The Passenger Facility Charge program was authorized in 1990 to allow commercial airports the option of imposing a per passenger fee for eligible airport development projects. As of April 1994, FAA estimates that about 160 airports will collect about \$750 million in Passenger Facility Charges in fiscal year 1995.

Our work over the past several years has identified ways in which FAA could better ensure that the AIP funds are used in the most cost-effective manner. In our FAA budget testimony before this Subcommittee in 1992, we recommended that FAA establish program goals to help guide FAA's investment decisions and also act as benchmarks for measuring progress. However, despite its commitments, including assurances to this Subcommittee last year, FAA has not yet set goals for the AIP. Such goals could provide focus and direction for the AIP and form a basis to measure the program's accomplishments. For example, FAA could set a goal of reducing aircraft delays nationally by 50,000 hours and analyze the potential effect of various projects on this goal.

As we recently reported to the Senate Appropriations Subcommittee on Transportation,¹² in two respects, FAA could have more effectively managed the use of letters of intent (LOI).¹³ First, while most LOI commitments were for capacity projects, FAA did not ensure that LOIs were used only for projects that significantly enhance systemwide airport capacity, as required by statute. FAA did not establish criteria defining a "significant" enhancement by which to evaluate and approve LOI proposals or set a goal for improving systemwide capacity on which to base criteria for LOIs. As a result, FAA issued LOIs for some projects that could not significantly enhance systemwide capacity. For example, FAA approved LOIs for projects to construct water treatment facilities and access roads at two major airports and for projects

¹²Airport Improvement Program: Better Management Needed for Funds Provided Under Letters of Intent (GAO/RCED-94-100, Feb. 2, 1994).

¹³FAA can provide AIP funds under either grants or letters of intent. LOIs provide attractive options not available with grants, such as the ability to draw multiyear funding from all three of the program's funding categories (entitlement, set-aside, and discretionary funds) and to schedule disbursements beyond the program's current authorization period. LOIs can only be issued for projects at primary and reliever airports.

at eight small primary airports where fewer than one-tenth of 1 percent of all U.S. passengers are enplaned annually. We recommended that FAA set a goal for improving systemwide capacity and a definition of significant capacity enhancement in relation to this goal and analyze projects proposed for LOIs against this goal and definition.

Second, while FAA carried out the statutory planning requirement, the agency made incorrect assumptions about the AIP's future funding levels. Under the planning requirement, FAA set goals to ensure that a reasonable level of discretionary funds would be available for other airport needs after meeting LOI commitments. In 1992, FAA determined that LOI commitments should be limited to half of the AIP discretionary funds available for LOIs at the beginning of each fiscal year. FAA met this goal in fiscal years 1992 and 1993. However, the agency may not meet its goal in fiscal years 1994 and 1995. The discretionary funds available for LOI disbursements at the beginning of the fiscal year decreased from fiscal year 1992 to fiscal year 1993 and may decrease further. At the same time, the commitments under LOIs are at a higher level. Under these circumstances, fewer funds are available for projects not funded with LOIs than FAA had anticipated. We recommended that FAA plan LOI funding commitments for each fiscal year on the basis of more conservative assumptions about future discretionary funding levels in the AIP.

Our ongoing work for the Senate Appropriations Subcommittee indicates that FAA has not assessed whether the set-asides for reliever airports and the Military Airport Program are having their intended effects or can meet their respective objectives. Such analysis could help FAA determine if the AIP funds need to be redirected. FAA has provided about \$1.5 billion in AIP funds to 291 reliever airports since 1982, but it does not know the extent to which this investment has alleviated--or can alleviate--congestion at larger commercial service airports. Also, FAA has

not determined how over \$96 million in Military Airport Program funds will enhance capacity in major metropolitan areas by assisting in the conversion of selected airports to civilian use. We plan to report on FAA's management of these set-asides later this year.

In our ongoing work for this Subcommittee, we also found that FAA did not ensure the cost-effective use of AIP funds for airport access control security systems.¹⁴ FAA did not establish guidelines to encourage airports to install the most cost-effective system or a ceiling on the amount of AIP funds that airports could receive. As a result, costs far exceeded the original FAA estimates that these systems at 270 airports would cost about \$170 million. As of April 1994, FAA estimates that these systems have cost about \$480 million, including about \$250 million in AIP funds. Costs have varied widely across comparable airports. For example, Hartsfield Atlanta Airport installed access control systems costing \$1.6 million, of which over \$0.4 million was AIP-funded. In contrast, Chicago O'Hare Airport installed systems costing about \$45 million, including \$29 million in AIP funds. Although most airports have completed system installation, many will begin to assume costs to upgrade or replace their systems over the next few years. These costs are eligible for AIP funding. We intend to report soon on how to achieve a more cost-effective approach to access control systems.

According to FAA officials, over the next year, FAA plans to take several actions to better manage the AIP. Specifically, FAA plans to (1) establish program goals, (2) perform cost-benefit analysis on capacity projects proposed for \$10 million or more in funding, (3) perform analysis to determine the systemwide effects of projects proposed for LOIs on aircraft delays, (4) monitor

¹⁴These airport access control systems are required under 14 C.F.R. Section 107.14 that became effective in February 1989.

investment decisions across regions to ensure consistent application of its priority system for funding projects, and (5) analyze and report on how investments have met program goals. However, it is important that FAA follow through with its plans. We will monitor FAA's progress in implementing its planned program changes.

FAA'S SECURITY RESEARCH EFFORTS HAVE
NOT MET CONGRESSIONAL EXPECTATIONS

FAA's RE&D Program plays an important role in ensuring the safety, security, and efficiency of the U.S. transport system. FAA is requesting about \$267 million in fiscal year 1995--an increase of about 5 percent from the level enacted last year. FAA's RE&D budget funds such regulatory issues as aircraft safety and explosives detection as well as aging aircraft, fire safety, human factors research, and efforts to refine and develop ATC technology. FAA allocates about 40 percent of the RE&D budget to regulatory and 60 percent to ATC research.

At the request of this Subcommittee, we are assessing FAA's security research program, particularly the development of new explosive detection equipment. The Aviation Security Improvement Act of 1990 directed FAA to support the acceleration of efforts to develop new explosive detection technology and have new equipment in place by November 1993. We recently provided this Subcommittee with a report on FAA's progress in responding to other key provisions of the act.¹⁵ FAA is requesting \$36 million for security research in fiscal year 1995--about the same as last year's enacted level.

¹⁵Aviation Security: Additional Actions Needed to Meet Domestic and International Challenges (GAO/RCED-94-38, Jan. 27, 1994).

Since the Pan Am tragedy more than 5 years ago, FAA has made little progress in developing new security technology. However, to meet the act's goals, FAA will need to conduct research at comparable funding levels into the foreseeable future. FAA has efforts under way to improve the screening of carry-on and checked baggage, passengers, and electrical devices and to enhance aircraft survivability. According to FAA's Aviation Security Research and Development Scientific Advisory Panel, it may be another 2 to 5 years before FAA develops and approves an explosive detection device that can meet FAA's requirements for checked baggage. Advanced X-ray, the most promising technology, borrows heavily from advances made in the medical field, but such other technologies as trace and nuclear do not appear promising for screening checked baggage. However, FAA officials point out that nuclear devices--like the thermal neutron analysis device--remain as good as any other technology for detecting a wide range of explosives and may offer longer-term potential for screening cargo.

The most promising research effort to date is the development of blast-resistant luggage containers to improve aircraft survivability. FAA expects to approve design specifications for the containers by the end of fiscal year 1994. We testified last year that the airline industry has concerns about the cost, weight, and durability of the new containers.¹⁶ These concerns still exist, but FAA is optimistic that the new containers can be made competitive in terms of cost, weight, and durability with aluminum ones currently in use.

Last year legislation was introduced in the Congress that would clarify the use of AIP grant funds for airports to purchase explosive detection devices. Several issues need to be resolved before federal funds are used for this purpose. For example, if

¹⁶FAA Budget: Important Challenges Affecting Aviation Safety, Capacity, and Efficiency (GAO/T-RCED-93-33, Apr. 26, 1993).

enacted, this legislation would shift responsibility for screening passengers and their baggage from airlines to airports. FAA officials told us that airlines would have to enter into agreements to use the equipment while maintaining the responsibility for screening passengers and bags. In addition, because FAA has not analyzed the cost of new explosive detection equipment, the impact on the AIP is unknown.

In the longer term, as FAA and the industry move to implement new explosive detection technology, the cost and funding of the devices will take on increasing importance. Currently, neither FAA nor the industry has information on the acquisition and life-cycle costs associated with implementing the new technology. Industry estimates that new devices could cost between \$250,000 and \$1 million each; FAA's most promising device is estimated to cost about \$800,000. Because devices will have to be used in combination to meet FAA's requirements for screening checked baggage, airlines' costs to purchase new detection equipment could skyrocket. FAA, DOT, and airline officials with whom we spoke believe that federal funds will be needed to speed the introduction of this technology. Regardless of who will pay, the devices must work reliably at airports.

However, we found serious shortcomings in FAA's process for approving new explosive detection equipment for industry use. For example, FAA does not plan to test new equipment at airports as part of the certification process but instead intends to rely on contractor and laboratory tests to determine the performance of new equipment. In addition, FAA has not developed reliability standards for the new equipment, even though the reliability of the devices can have significant impacts on airlines' operations. FAA could approve a system without knowing how frequently it will break down. FAA officials believe that such operational issues as maintainability, reliability, and compatibility are economic trade-offs that only the airlines can make. Later this year, we expect

to provide this Subcommittee with a report detailing these and other issues related to FAA's efforts to develop new explosive detection technology.

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FAA is at a pivotal point because of the convergence of several key challenges. First, FAA faces the prospect of almost no-growth budgets for the foreseeable future. In addition, current trust fund revenues are less than outlays for FAA's budget and it is important that FAA operate in the most cost-effective manner within available funds.

Second, FAA needs to make key decisions on restructuring the AAS and cannot afford to permit acquisition reform efforts to slip. A major problem with the AAS as well as with other components of the modernization effort has been inadequate management oversight at various project phases. And it would be a misconception to point to funding levels and procurement or personnel rules as a cause of the modernization program's problems.

Third, FAA must downsize its work force consistent with a strategy for ensuring the appropriate distribution and mix of staff among its facilities. This is a good opportunity to downsize overstaffed facilities, address imbalances at the understaffed facilities, and make any appropriate adjustments in the mix of FAA's various work forces.

Fourth, we have identified significant targets of opportunity for FAA to make more cost-effective decisions when investing AIP funds. FAA plans to take several actions that address our recommendations and now must follow through to implement them. And finally, in the security research and development program, FAA needs to give management attention to how new security devices will

be tested to ensure they work reliably and in assessing the cost implications of fielding these new technologies.

Mr. Chairman, this concludes our testimony. We will be pleased to respond to any questions you or other Members of the Subcommittee may have.

F&E APPROPRIATIONS HAVE INCREASED SIGNIFICANTLY
BUT ARE NOW LEVELING OFF

As indicated in figure 1, FAA's F&E appropriations have increased significantly since fiscal year 1987; however, the F&E appropriation decreased in fiscal years 1993 and 1994. In constant 1994 dollars (calculated to remove the effect of inflation), the Congress has increased the F&E appropriation at an average annual rate of 21 percent since the early days of the modernization program in 1982. The F&E appropriation increased sharply between fiscal years 1982 and 1985. After a decline in fiscal years 1986 and 1987, the F&E appropriation again rose sharply--increasing at an inflation-adjusted average annual rate of 11 percent between fiscal years 1987 and 1994, despite an average annual decline of 8 percent during the last 2 years.

Figure 1: F&E Appropriations in Constant and Current Dollars, 1982-94



Source: GAO's analysis of data from FAA's Budget Office.

APPENDIX II

APPENDIX II

FULL-TIME EMPLOYMENT OF FAA'S WORK FORCES
AT THE END OF FISCAL YEARS 1986-95

End of fiscal year	Air traffic controllers	Field maintenance technicians	Aviation safety inspectors	Aircraft certification work force	Aviation security work force	Total
1986	14,803	8,306	1,813	684	379	25,985
1987	15,433	8,667	1,939	720	404	27,163
1988	16,436	8,646	2,093	733	478	28,386
1989	16,832	8,687	2,311	751	511	29,092
1990	17,226	8,904	2,577	806	627	30,140
1991	17,721	8,994	2,487	854	810	30,866
1992	17,982	8,995	2,582	837	852	31,248
1993	17,688	8,756	2,423	845	831	30,543
1994*	17,523	8,348	2,370	826	812	29,879
1995*	17,300	8,200	2,568	900	812	29,780

*Estimated.

Source: Compiled by GAO from FAA's data.

RELATED GAO PRODUCTS

Air Traffic Control: Status of FAA's Modernization Program
(GAO/RCED-94-167FS, Apr. 15, 1994).

Advanced Automation System: Implications of Problems and Recent Changes (GAO/T-RCED-94-188, Apr. 13, 1994).

Aviation Safety: FAA and the State Department Can Better Manage Foreign Enforcement Cases (GAO/RCED-94-87, Mar. 17, 1994).

Transportation Safety: Opportunities for Enhancing Safety Across Modes (GAO/T-RCED-94-120, Feb. 10, 1994).

Airport Improvement Program: Better Management Needed for Funds Provided Under Letters of Intent (GAO/RCED-94-100, Feb. 2, 1994).

Aviation Security: Additional Actions Needed to Meet Domestic and International Challenges (GAO/RCED-94-38, Jan. 27, 1994).

Aviation Safety: FAA Can Better Prepare General Aviation Pilots for Mountain Flying Risks (GAO/RCED-94-15, Dec. 9, 1993).

Aircraft Certification: FAA Can Better Meet Challenges Posed by Advances in Aircraft Technologies (GAO/T-RCED-94-53, Oct. 20, 1993).

Airport Improvement Program: Allocation of Funds from 1982 to 1992
(GAO/RCED-94-14FS, Oct. 19, 1993).

Airport Improvement Program: Program Funding by State Relative to Enplanements for Selected Years (GAO/RCED-94-7FS, Oct. 12, 1993).

FAA Reauthorization: Opportunity Exists to Address Safety, Capacity, and Efficiency Issues (GAO/T-RCED-93-75, Sept. 28, 1993).

Aircraft Certification: New FAA Approach Needed to Meet Challenges of Advanced Technology (GAO/RCED-93-155, Sept. 16, 1993).

Aviation Research: Issues Related to FAA's Research Activities
(GAO/T-RCED-93-68, July 29, 1993).

FAA Work Forces: Important Decisions Affecting Staff Use and Management (GAO/T-RCED-93-59, June 30, 1993).

Airport Improvement Program: Opportunity to Consider FAA's Role in Meeting Airport System Needs (GAO/T-RCED-93-43, May 26, 1993).

Aviation Research: Actions to Enhance the Effectiveness of FAA's Research Activities (GAO/T-RCED-93-40, May 20, 1993).

APPENDIX III

APPENDIX III

Air Traffic Control: Improvements Needed in FAA's Management of Acquisitions (GAO/T-RCED-93-36, May 5, 1993).

FAA Budget: Important Challenges Affecting Aviation Safety, Capacity, and Efficiency (GAO/T-RCED-93-33, Apr. 26, 1993).

Air Traffic Control: Uncertainties and Challenges Face FAA's Advanced Automation System (GAO/T-RCED-93-20, Apr. 19, 1993).

Air Traffic Control: Status of FAA's Modernization Program (GAO/RCED-93-121FS, Apr. 16, 1993).

Air Traffic Control: Advanced Automation System Problems Need to Be Addressed (GAO/T-RCED-93-15, Mar. 10, 1993).

Air Traffic Control: Justifications for Capital Investments Need Strengthening (GAO/RCED-93-55, Jan. 14, 1993).

Aviation Safety: Increased Oversight of Foreign Carriers Needed (GAO/RCED-93-42, Nov. 20, 1992).

Airspace System: Emerging Technologies May Offer Alternatives to the Instrument Landing System (GAO/RCED-93-33, Nov. 13, 1992).

Air Traffic Control: Advanced Automation System Still Vulnerable to Cost and Schedule Problems (GAO/RCED-92-264, Sept. 18, 1992).

FAA Budget: Key Issues Need to Be Addressed (GAO/T-RCED-92-51, Apr. 6, 1992).

Aviation Safety: Commuter Airline Safety Would Be Enhanced With Better FAA Oversight (GAO/T-RCED-92-40, Mar. 17, 1992).

Aviation Research: Progress Has Been Made but Several Factors Will Affect Program Success (GAO/T-RCED-92-39, Mar. 10, 1992).

Air Traffic Control: Challenges Facing FAA's Modernization Program (GAO/T-RCED-92-34, Mar. 3, 1992).

Aviation Safety: Better Oversight Would Reduce the Risk of Air Taxi Accidents (GAO/T-RCED-92-27, Feb. 25, 1992).

Airport Development: Improvement Needed in Federal Planning (GAO/T-RCED-92-30, Feb. 19, 1992).

Aviation Safety: FAA Needs to More Aggressively Manage Its Inspection Program (GAO/T-RCED-92-25, Feb. 6, 1992).

Aviation Safety: Air Taxis--The Most Accident-Prone Airlines--Need Better Oversight (GAO/RCED-92-60, Jan. 21, 1992).

APPENDIX III

APPENDIX III

Aviation Safety: Problems Persist in FAA's Inspection Program
(GAO/RCED-92-14, Nov. 20, 1991).

FAA Staffing: Better Strategy Needed to Ensure Facilities Are Properly Staffed (GAO/T-RCED-92-8, Oct. 16, 1991).

Air Traffic Control: FAA Can Better Forecast and Prevent Equipment Failures (GAO/RCED-91-179, Aug. 2, 1991).

Aviation Acquisition: Further Changes Needed in FAA's Management and Budgeting Practices (GAO/RCED-91-159, July 29, 1991).

Air Traffic Control: The Interim Support Plan Does Not Meet FAA's Needs (GAO/RCED-90-213, Sept. 11, 1990).

Air Traffic Control: Continuing Delays Anticipated for the Advanced Automation System (GAO/IMTEC-90-63, July 18, 1990).

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ADVANCED AUTOMATION SYSTEM

Mr. CARR. You point out that we face very serious challenges. Not only the FAA faces serious challenges, but we face a very serious challenge in putting together this year's appropriations request.

You talked about the first phase of AAS being delayed another 20 months. The contractor, not before us but before another Committee, said they thought they could deliver the system with only a seven month delay. Have you had a chance to try to evaluate what the contractor's recent statements are and get some feel for why the contractor seems so much more optimistic than your assessment?

Mr. MEAD. In some respects, we have. As was noted just last week, in testimony before the House Public Works Committee, we would not take that estimate to the bank. Basically, October 1996 was the scheduled operational date for ISSS, the major component, before all these revelations. The FAA task force estimated a 50-50 chance of making it within 20 months of that date. Now, Loral is saying, well, it could be seven months of that date. Perhaps some numbers would put in context why I have some reservations about that date and some serious reservations.

The software volatility in this system, and that term refers to how many times you have to rewrite lines of code, was estimated to be about 40 percent. It is really 100 percent. There were very recently about 2,000 PTRs, so called program trouble reports, with the software. IBM said 800 of them were critical. FAA was saying 400 of them were critical. We think the load would be quite a bit to meet that date as estimated by the contractor.

Anybody else want to say anything?

Mr. Chairman, I should also note that while I think that date is very ambitious, one positive feature of what Loral is recommending, we think it is positive, is to get the system tested out by users sooner than would otherwise have been the case.

Mr. CARR. Off the record for a minute.

[Discussion off the record.]

Mr. CARR. I apologize for this interruption, but maybe it will be useful for people who are in the audience to know that we intend to go until 12:30 today and break for about an hour and we will come back at about 1:30 and then we will go until about 3:00, maybe no later than 3:30 today so that people might be able to plan their day a little better.

All of that, of course, is subject to some votes that we might have, and if we get a journal vote around noon, we will not come back until about 1:30, then.

ATC CORPORATION

Mr. CARR. Well, back to the topic at hand. Mr. Mead, I am anxious to put on the record, not that I would agree with you in this particular matter, and I generally agree with you. You state on page 9, "In our opinion, the above factors—not inadequate funding or Federal procurement or personnel rules, as contended by some proponents of an ATC corporation—have caused problems with the AAS."

The Secretary, in a *Roll Call* article entitled, "The Case For An Air Traffic Control Corporation," wrote, and I am quoting, "This case alone provides," and we are talking about AAS again, "This case alone provides powerful evidence that reform of the ATC procurement system is long overdue."

Now, your statement is somewhat to the contrary. This is a little off the subject, because I hope to ask the Administrator some questions about the proposal for an ATC corporation, and indeed I am of an open mind about it. I can see some great virtues in an ATC corporation, and my own sense is that perhaps a corporation could do a better job in procurement than the cost plus government environment.

You wrote this in the report and I know from previous conversations that you may not be as enthusiastic about an ATC corporation as some in the administration, but what lessons are there here for that issue?

Mr. MEAD. We do not intend our testimony as an exposition on the merits or demerits of an air traffic control corporation, but we do feel compelled to point out that the problems with the advanced automation system, which is the centerpiece of this modernization program, are not caused by procurement rules or the funding decisions of this committee, which are two of the problems that are cited as the reasons for going to an air traffic control corporation. As a matter of fact, I could make a good case that you have given too much money to the AAS program, and I don't see how the software problems being experienced or the lack of oversight by management can be attributed or linked to the fact that the FAA is not a corporation like Amtrak.

And, in addition, the software problems being experienced here are not just those being experienced by a government agency, they are being experienced by some of the most prestigious corporations in the world and we think it is somewhat of a distraction to point to procurement rules or funding decisions of this committee or personnel rules as explaining why we are in the fix we are in with the advanced automation system.

Mr. CARR. If you had to capsule it in a few words, what would you say it is?

Mr. MEAD. I would say you had an extremely ambitious project in the beginning that was more of a concept than a specific plan; that the management oversight of this has been sporadic, different people, different administrators, enormous turnover at the administrator, at the helm. Those are the two big factors I would point to.

Mr. CARR. Do you have any personal opinions about the ATC corporation proposal?

Mr. MEAD. Yes.

Mr. CARR. Good. Next question. [Laughter]

Mr. MEAD. I think, Mr. Chairman, that I sense the same frustration that probably everybody in this room on the dais and the audience feel about FAA and the problems there. And I think that part of the ATC corporation idea has blossomed out of this extreme sense of frustration.

But we also oversee outfits like Amtrak. Amtrak is not a paragon of what you would like to see the ATC corporation look like. Yet Amtrak is free largely of Federal personnel rules; they are free of

Federal procurement rules and they can go out into the private markets and borrow. The fact is that this subcommittee ends up paying back those borrowings, with interest sometimes. So I think it needs to be very carefully scrutinized as to whether it is the answer to all the problems.

Mr. CARR. Well, my interest in the ATC corporation has really nothing to do with the AAS problem. I just think we ought to look at it. We ought to look at the ATC corporation and give it a fair shot, not really in the context of AAS, and I think it is unfair to link the two.

I am sure that the Secretary did not sit up late at night writing that article in *Roll Call*, and I am sure it was drafted by someone else and it undoubtedly reflects his thoughts, but I am not really sure that the Secretary sees, or the Vice President for that matter, sees the need for an ATC corporation to be in response to an AAS problem. I think there is a bigger picture going on there.

Mr. MEAD. I should point out also that the procurement rules are in need of reform. But I think a lot of Federal agencies face that case. It is just more magnified at FAA because they are so operational. And the same goes for personnel rules.

Mr. CARR. Well, I have some more questions but I want to give my colleagues an opportunity to ask some.

Who showed up first here? Mr. Price.

Mr. PRICE. Let me pass for just a moment, Mr. Chairman, and if you would come back to me, please.

Mr. CARR. Mr. Coleman.

Mr. COLEMAN. I don't have any questions. I am still going through the report. Thank you.

Mr. CARR. Mr. Wolf.

WORK FORCE REDUCTIONS

Mr. WOLF. Thank you, Mr. Chairman. And Mr. Mead, welcome. I guess I should ask you a couple questions.

I went through your testimony quickly and on page 2 you say, the most critical challenges FAA faces in the operations area will be reducing its work force by 12 percent, and then you talk about a negative impact on safety.

Then, on page 13, you say FAA is offering certain members of the safety work forces a financial incentive to retire. FAA is offering financial incentives to all first-line controller supervisors and all controllers at low-activity towers.

Then you say, on the basis of its staffing, on page 14, of its staffing standards, FAA already has staff shortages. The controller work force is understaffed, for example, by 1,533.

Do you want to elaborate a little on that? I think a lot of this reinventing government is sort of a—you know, the buyout money, they have spent the savings from the buyout three different times. It has been "spent" for building new prisons, defense, and the deficit. My sense is it is targeting a group of people that are probably the backbone of the government.

Do you want to comment a little about that and what you think the FAA has to do with regard to that buyout? I think every agency feels they have to kind of get with the program.

Mr. MEAD. We think it is an opportunity for FAA to manage properly, and—

Mr. WOLF. How is it an opportunity?

Mr. MEAD. It is an opportunity for them to clear up a lot of imbalances between work forces. For example, there are overstaffed facilities and there are understaffed facilities. And what we are alluding to here is in the process of doing this downsizing, it is important that FAA make sure that it has the right number of people at each facility and that they have the right number of supervisors.

And this committee has asked FAA, I believe going back three or four years, how many people it needs at its individual facilities, and it has not come through. So our concern is that FAA is going down this work force reduction course offering the buyouts, but it does not yet know how many people it is going to need at its various air traffic control facilities.

Mary Ann, do you want to amplify?

Ms. KRUSLICKY. The only thing I would add, Mr. Wolf, is the problem will not affect overstaffed facilities. Where FAA is going to have to take careful thought is the facilities that are already understaffed and how are they going to get the people they need into those positions and how do they know the number of people they do need in those positions. These are the challenges to which we were alluding.

Mr. WOLF. Because the whole purpose of the buyout was really to save money, and they are targeting 15's and people in the upper pay scales because that is how they are going to get the bang for the buck, if you will. They may very well be the people that you need.

Is this buyout now going to be available to everyone in that range or just certain categories in the range?

Ms. KRUSLICKY. Just certain categories. As we have indicated in our testimony, FAA will be offering the buyout to all Level 1 controllers, controllers supervisors and managers; inspector supervisors and managers, maintenance technicians supervisors and managers; and all security personnel. So it will not be offered to a number of the controllers at the Level 2, 3, 4 and 5 facilities.

Also, it will not be offered to a number of the inspectors that are actually responsible for overseeing the industry.

Mr. WOLF. So you think that the groups they are making it available to, that is the appropriate way to do it?

Ms. KRUSLICKY. I think they had some tough decisions to make. Again, the whole strategy of what they are going to do after they have their final count on the buyout is to look at their supervisory structure.

I don't think you can say right now that they can get rid of all their supervisors. That would not make sense to any organization. But these are the types of issues that FAA will be facing over the next few weeks when it finally closes out its books on the buyout.

Mr. WOLF. When does the buyout close?

Ms. KRUSLICKY. May the 3rd.

Mr. WOLF. So that is really a week and a half?

Ms. KRUSLICKY. Yes.

TURNOVER IN ADMINISTRATORS

Mr. WOLF. Well, okay.

Let me just cover maybe two other areas so we can move along and get to the FAA, too.

Do you think maybe that the problem with the AAS and some other issues is that there have been too many administrators or too many vacancies when administrators have left?

Mr. MEAD. I don't think there is any question about it. You know, this year, it is AAS; last year, it was another issue. But I don't think there is any question that the lack of the person at the helm consistently, over time, especially in something as complicated as this modernization project, is bound to affect oversight. Initiatives start, initiatives end, then another initiative starts, depending on who the Administrator is.

TRAVEL OF ADMINISTRATOR

Mr. WOLF. I have looked at the travel record of previous Administrators; do you think the Administrators are traveling too much and not staying around town where they ought to be?

It is very hard to administer an agency if you are flying all over the country and the world.

Mr. MEAD. I am not familiar with the travel patterns of the Administrator; I am just not, so I would not have an opinion.

PROGRAM MANAGER COOPERATION

Mr. WOLF. Do you think there is an attitude problem at the FAA?

In last year's appropriation bill, the Office of Inspector General was directed to perform an ongoing review of the AAS program. In an initial report, one of the problems identified by the Inspector General was lack of responsiveness on the part of the FAA to the numerous previous audits of the AAS program performed by the Defense Contractor Audit Agency.

According to the IG, these previous audits have been inhibited by the reluctance of the FAA to provide technical assistance so that the data can be properly evaluated. According to the IG, some FAA officials refused to talk to the DCAA auditors looking into IBM's cost and pricing data.

Mr. LI. Mr. Wolf, I am familiar with that report. As you know, I have been working in the FAA and looking at modernization for now probably over 10 years, so I have had a lot of contact with different programs in FAA. And I have also experienced that same sort of reticence on the part of the program office to provide information when I needed it right away.

I have to also say, however, that in the past few months, as indicated by the task force report, I believe that some of the barriers have been broken somewhat and we have been allowed access to some of the information. The previous fortress-like mentality has been overcome somewhat and more information is coming out. I think that is a breath of fresh air and I think that is why some of these things are coming out now.

Mr. WOLF. Well, that is encouraging and that is a tribute to the current Administrator.

Why do you think the attitude has been like that over at the FAA?

Mr. LI. As I testified last year, I believe that it is unfortunately part of a program manager mentality that is protective of their program. It is understandable. They are trying to protect their program and trying to put the best foot forward and the best face forward.

Unfortunately, that also means that some information which top management needs to know and to redirect the program is not being provided. I think that is the negative side of it.

That is not only unique to FAA. We have found that when we looked at programs in the Department of Defense, the same problem occurs in terms of the program manager being very defensive about his or her program.

Mr. MEAD. I think one thing FAA could do is its top management needs to probe deeper when it is getting all these rosy reports. That did not happen in this case until things blew up.

Mr. WOLF. Were you able to track where most of the problems were when they were without an FAA Administrator? Is there any tracking? Did some of the bigger problems develop when there was a vacancy? Was it a problem that new FAA Administrators get co-opted by the system and don't ask the tough questions?

Mr. MEAD. Well, I have talked to FAA Administrators that tell me it takes them fully a year to even understand this program.

Mr. WOLF. And yet what has been the term of most of them?

Mr. MEAD. Couple of years.

Mr. LI. Eighteen months.

Mr. MEAD. And then there is usually a 6- or 7-month, maybe not quite that long, but there is usually a hiatus where there is an Acting Administrator, as was the case last year. Mr. Del Balzo, I believe, was the Acting Administrator when he testified before this committee last year.

Mr. WOLF. Yes.

Mr. MEAD. I have seen cases where the Administrator will say, gee, the AAS program is experiencing difficulties, we are going to undertake this initiative, we are going to put things on the right track. Then that Administrator leaves, a new one comes in, and there is a certain cycle.

Mr. WOLF. Well, I think there has been too close a relationship between some top people at the FAA and the contractors, too. When they were testifying last year, they would call each other by the first name, if you go back and look at the transcript. I think the relationship got just too close.

I see a couple of people shaking their head. I don't know if there are any comments on that or not.

Does anybody have any comment with regard to that?

Mr. LI. I recall your comment last year, Mr. Wolf. The fact that they do have some familiarity that would cause them to call each other by their first name, however, does not detract from the fact that I believe that FAA has tried to stay at arm's length with many of its contractors.

There needs to be a good working relationship between the contractor and FAA. But I agree with you that it is an issue that, obvi-

ously, would concern me if it overlapped and overflowed into making some changes that were not advisable.

Mr. WOLF. Without emphasizing it in the record, there have been certain things that have happened that I have been aware of, and that I have been deeply, deeply troubled by, that demonstrate kind of a laxness with regard to that area.

DENVER AIRPORT

The last question is with regard to the Denver Airport; how are we doing on the Denver Airport?

I am going to ask the Administrator about this. With the new Secretary coming from Denver and with his interest in that, obviously, we all hope the Denver Airport succeeds, but do you think the Denver Airport will need a bailout now; or how is it doing?

Are they on their target date? I know you have looked at this in detail.

Mr. MEAD. As you know, it is not on target, and the latest slip-page is to May 15th. It does appear as though they are going to open. United Airlines is saying they are reasonably confident that the baggage system is fixed.

The airlines have been absorbing much of the cost overruns. From our discussions with them, they know this is going to be costly, but at the present time, they are not talking about coming to this committee and asking for more money. Time will tell.

I have heard some talk about a sixth runway. I don't know what need there is for a sixth runway at the new Denver Airport at the present time.

Mr. WOLF. Have they requested funds yet for the new sixth runway?

Mr. MEAD. I do not think so. You can ask FAA.

Mr. WOLF. Still, United and Continental—have any new airlines gone into Denver or are any looking at going into Denver?

Mr. LI. Not that we are aware of.

Mr. MEAD. Mesa may have been discussing it, but no major carriers.

Mr. LI. No.

Mr. WOLF. I thought I read, too, that Continental was pulling some flights out of Denver.

Mr. MEAD. Continental is downsizing and changing fairly dramatically the way it operates, yes.

Mr. WOLF. Well, for the record, if you have any other thoughts with regard to that, I guess we will just have to see.

Mr. MEAD. We will keep you apprised. We are aware of your continuing interest.

Mr. WOLF. And when it is open, I think we want to make it a success. It is not a matter of trying to do what we can to make it not work. I certainly would not favor a bailout. I am not so sure the Congress would, but you want to make it go as well as we possibly can.

I had heard maybe one airline was talking of going in but not servicing the new Denver Airport; going into Colorado Springs and other places like that. Had you heard of that?

Mr. MEAD. I am aware some airlines are considering going to other airports in Colorado during the tourist season.

Mr. WOLF. Which would place the Denver Airport at a disadvantage.

Mr. MEAD. If that strategy works, though. Because also the Denver Airport is more strategically located to Aspen, I believe, than others.

Mr. WOLF. Right.

Mr. Chairman—

Mr. MEAD. Mr. Carr says no.

Mr. CARR. Eagle County.

Mr. WOLF. I have nothing further.

Thank you.

Mr. MEAD. I have heard of Eagle County.

FACILITIES AND EQUIPMENT INVESTMENT CRITERIA

Mr. CARR. Well, Eagle County has a strategically located airport for Aspen, but, nonetheless, one of the areas, Mr. Mead, that your testimony came as a surprise to me is in relation to what the FAA told our Subcommittee last year. We were given some information by the FAA that led us to believe that they had a pretty good process in place for analyzing the economic rates of return and cost and benefit analysis of investments in facilities and equipment.

They acknowledged, indeed I would say "confessed," that the AIP program contained no cost benefit or economic rate of return analysis on investment, but they did insist that there was some used in facilities and equipment. Now, your testimony contradicts that; could you elaborate on this for us?

Mr. LEVIN. We did find evidence of cost-benefit analysis in the projects that we looked at. Our concern is that we did not understand how it was used; how it was factored into the decisions.

In some cases, projects with very high benefit-cost ratios were not funded and projects with fairly low ones were funded. So, obviously, there were other considerations brought to bear, which is fine, there could be operational needs that make sense and you want to go forward.

Mr. CARR. But there was no paper trail explaining that?

Mr. LEVIN. That is what our problem was; that we have been unable to get a clear response on exactly how they made the decision; what the factors were, what went into the decision. That has been our problem.

This is ongoing work for the committee. We have not issued a report on this subject yet. We still need to get together with the FAA and close the loop on this. But our initial work to date makes us raise a lot of questions about how well they documented decisions; how good the decisions really are because we do not see the information that we would like to see.

Bob, would you like to add anything?

Mr. WURSTER. I think there were four projects we were basically looking at, and on a couple of them, ASDE and ILS, they did produce cost-benefit analysis at each of the candidate sites. But as Mr. Levin said, it is not clear how it was used.

On the other projects, especially the tower replacement, the FAA told us that they did not see a need for cost-benefit analysis, because all these towers are 20 or 30 years old. But, obviously, all of them cannot be funded in any given year, so we would like to

see some more measure of cost effectiveness before they go forward with the budget.

Mr. LI. Mr. Chairman, if I may, I want to tie in our point with something that Mr. Wolf just said a few minutes ago, and that is some people may be looking at this as more bureaucracy, having to go through more loops in terms of the paper trail and whatever. Our perspective is that the Administrator and his top management cannot be every place all the time. And the solution to that is trying to institutionalize some of these reforms to the level of where the people are actually doing the work.

So I think that this is a very important point in terms of trying to instill the discipline, instill risk management in all their acquisition decisions, something that should not have to be elevated to the Administrator and forcing him to make—him or her to make that decision.

Mr. MEAD. And your geography is better than mine, Mr. Chairman. You are correct on Eagle County. That is the concern about the possible source of diversion, because it is more strategically located.

AIP INVESTMENT CRITERIA

Mr. CARR. Moving from F&E to AIP, do you think the FAA has made any progress in the last year in trying to move AIP into an economic rate of return analysis—investment analysis—or are they still doling out the dollars?

Perhaps we ought to ask you if you have an opinion about whether the authorization statute is really conducive to cost-benefit analysis, with all their little sub-offsets and set-asides and everything else? Maybe it just will not work. That is one of my fears.

Mr. MEAD. I think there is a basis for that concern; that there are too many set-asides. It is very complicated. Even on the discretionary side, it is extremely complicated.

We have seen some progress in the last year, so to specifically respond to your question on the problems with the letters of intent—that they seem to have bought that under control and are coming out with some investment guidance, I believe in June, on how they are going to make decisions there.

Once again, the key is going to be whether they use it.

Mr. LEVIN. To respond to your interest in the set-asides, maybe constraining their ability to make the most cost-effective decisions, I think we would echo that concern. We have been looking at the reliever airport program and the military airport program, and it struck us that maybe there are too many airports in these programs; also it is not clear what we are trying to accomplish with these projects.

Some seem to be good choices, that if the purpose is to relieve congestion, a couple of these general aviation airports can do that. Others, I do not think they can.

Mr. CARR. Well, it is an arcane thing. I would just say that I would hope that out of this reauthorization we can get something that is more rational. I somewhat doubt it. But it seems to me that the authorizers have missed a giant opportunity here to push AIP into cost-benefit and economic-rate-of-return analysis and enforce its use.

The final chapter on that has not played, but that is not our concern. That is a criticism of other processes here.

My problem is that within whatever process this institutes, with presidential signature mandates hopefully, the FAA will still, within whatever limitations it has, apply risk assessment, cost-benefit analysis, economic-rate-of-return analysis, and not use the inadequacy of congressional overlay as an excuse not to do anything.

Mr. MEAD. That is right.

I think there are two sides to this, and there are clearly major targets of opportunity for FAA in making its decisions on a cost-benefit basis. The letters of intent are a clear illustration of that.

LETTERS OF INTENT

Mr. CARR. You know, in your Senate Commerce Committee testimony last September, Mr. Mead, regarding LOIs, you say your preliminary findings are that LOIs have proven a highly effective means of helping airports plan and finance development projects. I am aware of only one LOI that has actually done that, and it is Reno, Nevada.

Are you aware of any other specific cases?

Mr. LEVIN. We have talked to everybody who has an LOI. They love them, of course. An LOI commits funds to them.

We have found that the FAA thought the LOI vehicle also was a very helpful thing for them to line up funding, especially since the reauthorization periods have been cut short. We do not have multiyear authorizations. The people who use them really like them.

In terms of our looking at it, you are right, we found one particular case that struck us that financially; it made a big difference, and that was the Reno case. Basically, we are using testimonial evidence there from the users to support our statement.

Mr. CARR. Well, what about requiring that, in addition to an LOI, a particular airport show that it be important to obtain more favorable financing conditions? I mean, these things are handed out sort of on faith that there is a certain logic behind it. Through that mechanism they use the LOIs to guarantee themselves a permanent political victory.

Mr. LEVIN. To grab a piece of the pie.

Mr. CARR. And turn it into an entitlement program.

Mr. LEVIN. Sure.

Mr. MEAD. In fact, the committee last year posed specific questions about what the financing means were going to be for the project in addition to Federal funds, and certainly that would be equally applicable here.

Mr. CARR. Any other panel Members have questions?

BUYOUT PROVISIONS

Mr. PRICE. I would like to pick up on Mr. Wolf's line of questioning on the buyout implications and ask you to comment on two aspects: One, the safety implications, and two, how this buyout might affect some of the training deficiencies you noted. These are big subjects, but I would appreciate some amplification.

On page 13, you express some misgivings about the durability of the FAA commitment to exclude its safety work force from these

reductions, and you note a number of categories in which the safety work force will have financial incentives to retire. You express some concern that while the buyout could decrease staff at overstaffed field facilities, it also could increase shortages at understaffed field facilities.

You talk about shortages in the controller work force at 302 facilities, controllers in the inspector work force at 65 field offices. How serious is this concern? You do not draw specific conclusions, but you imply very strongly we are facing a challenge to the FAA's safety mission unless the buyout is managed very carefully.

Mr. MEAD. Yes; well, I think you put it well. The key here is how well they manage the buyout.

Specific areas of concern deals with the facilities that are already understaffed. The controllers there are not eligible for the buyout, but their supervisors are. That means that you are going to have to have some mechanism for retaining a supervisory span of control.

The FAA can influence that by watching over the release dates that they would approve for, say, a supervisor requesting a buyout. They can control that release date. So that is going to be quite important to do.

Another issue at your level-1 towers, the FAA wants to contract many of those out. And the controllers there, not just the supervisors, are eligible for the buyout. What will happen to controllers that remain at those towers when they are transferred to a contractor? We think there is an opportunity here for sending them to some of the already understaffed facilities.

What will happen at that tower before it is contracted out if too many controllers at that tower decide to leave for the buyout? Again, the FAA can manage that by controlling the release date. Let me take you to another work force quickly, the inspector work force.

We just completed a job a few months ago on the certification of new aircraft. We found what we would characterize as serious imbalances between the supervision between the FAA people and so-called "designees" at the manufacturers, especially in the software development area.

You would not want to lose people that are already working in the software certification area. Again, that is an area that the FAA will have to manage.

An area that is not as directly related to safety, but I think could have profound implications, is people who are not in the safety work force but are in working on the modernization. Some of the expertise that FAA has there is very critical and you do not want to lose it.

Ms. KRUSLUCKY. And overlaying all this, Mr. Price, is the fact that FAA has made a commitment to broaden its span of control. However, in doing that, it is going to have to carefully assess whether it wants to have one criteria for the entire agency or various criteria for its various work forces. What may be acceptable for the inspector work force may not be acceptable for the controller work force.

So I think that is why we have said that FAA is facing a number of challenges with downsizing the agency and managing the buyout program.

Mr. MEAD. And we still do not know, as the testimony points out, we do not know how many people they need at their individual controller facilities. The Committee has been persistent in asking for that.

Maybe it did not matter, but now it does. We are downsizing the place.

CONTRACTING OUT ATC TOWERS

Mr. PRICE. How much is the situation complicated by the plan to contract out operating these 1,070 or so level-1 towers?

Ms. KRUSLICKY. Actually, the contracting out of the low-level towers may offer FAA an opportunity, as Ken said, to get staff to some of its understaffed facilities. We have talked to some of the controllers at some low-level towers, and except for those who are close to retirement, and there is not that many at each of the facilities, the rest of the controllers at the level-1 towers look at this as an opportunity for them to advance. Some of those, particularly those who came directly from the academy to the towers, have felt that their opportunities have been limited to move up to higher level facilities.

So the general sense that we get from the controllers at those towers is that this is a good opportunity for them for advancement.

Mr. MEAD. But, see, the current plan, as we understand it, is to let them elect what facilities they will go to.

Ms. KRUSLICKY. That is correct.

Mr. MEAD. And a possible suggestion here would be to control that election; would be to say you can go to a facility that is understaffed but we do not need you at an overstaffed facility, which would simply make it more overstaffed.

TRAINING

Mr. PRICE. Moving to the training issue, what kind of impact will this have on training, particularly at these level-1 facilities from where people move up in the system?

Ms. KRUSLICKY. If you are limiting your question solely to the level-1 towers, those controllers who will be moving up will have to be exposed to additional training than what they have now. The requirements at the level-2, level-3, level-4, level-5 facilities are vastly different than what the controllers experience at level 1's. So there will be a need for training of these folks, yes.

Mr. PRICE. But will contracting out affect the agency's control over controllers experience at level-1 towers? Will it hurt the agency's ability to train and bring people on?

Mr. MEAD. No, I do not think so, not from that aspect of it, no. The training comments we meant there were not really limited to the level-1 tower.

Mr. PRICE. You comment on training.

You point to some problem areas in training controllers in the operational capabilities of airborne traffic-alert collision avoidance systems, some deficiencies in the aircraft certification staffs, and, annual enrollments in courses, 19 percent below training quotas.

You note some encouraging signs the agency is addressing these deficiencies. Do the work force reduction and the buy out complicate this?

Mr. MEAD. It makes it more important that the FAA get its training program in order. In 1988, Administrator McArtor established what was called a "Flight Plan for Training." He established that program because FAA recognized it had widespread deficiencies in training, in all of its work forces; that it was not offering contemporary courses required to keep people current.

That "Flight Plan for Training" has been implemented only to a limited extent. The funding plans for it were initially very ambitious, but then the amount of funding that was actually provided was extremely limited. Now FAA is embarking on a new training initiative and it has a lot of decentralized features, where they are going to let the service organizations define what their training needs are. But how it is going to be funded and exactly what is going to be delivered in it is a matter that still seems open to us.

So we do think there is some urgency with this downsizing, when you are going to have a smaller, less experienced work force, that you are going to have to train them to get them trained where there are deficiencies.

Mr. PRICE. Thank you very much.

Thank you, Mr. Chairman.

Mr. CARR. Mr. Coleman.

EXPLOSIVE DETECTION

Mr. COLEMAN. I share the concern you highlighted earlier regarding the utilization of AIP funding. For example, when you were discussing the issue of funding the detection of explosive devices, who is going to deal with that? Right now it is the airline's responsibility. Some decisions need to be made fairly quickly about how it is that we intend to move in those kinds of areas for that kind of a safety issue.

Unless you wanted to expound on what is confronting us and a time-frame, I understood your statement.

Mr. MEAD. I guess our point is it is nice to do this research and development, but there are some very serious questions about who is going to pay for these devices that will have to be resolved and they have not been resolved.

Mr. COLEMAN. In addition, you raise the issue of determining its effectiveness, and whether or not the FAA itself would conduct the tests that would be required to determine its reliability and effectiveness. Testing is not anticipated to be done by the airlines, in the sense that it would have its own separate laboratories to make those determinations, but rather just utilize the safety devices and see if they work after we bought them or after they have bought them.

Mr. MEAD. That is exactly right, sir.

Mr. COLEMAN. At some point, this issue is certainly worthy of the attention of this Subcommittee, as well as the authorizing committees, about how much government involvement there should or ought to be.

Mr. MEAD. The Subcommittee will be receiving a report from us before you mark up this legislation, and that report will contain specific recommendations along the lines to which you are alluding.

Mr. COLEMAN. This year you will have that report for us?

Mr. MEAD. This year, sir. Matter of just a couple of weeks, I think.

Mr. COLEMAN. Thank you, very much.

Thank you, Mr. Chairman.

Mr. CARR. Do you have anything more, Mr. Wolf?

Mr. WOLF. No.

Mr. CARR. Okay.

Once again, thank you, Mr. Mead, and all your colleagues for helping us out. I look forward to hearing from you soon again.

Mr. MEAD. Sure.

Thank you.

[CLERK'S NOTE.—Additional questions of the GAO submitted by Mr. Delay follow:]

ATC CORPORATION

Mr. DELAY. Is what you have stated regarding the facilities and equipment account one of the main arguments for the ATC corporation?

[The information follows:]

This year—and also in prior years—we have testified and reported on the status of FAA's capital investment plan. Major acquisitions in this plan have been plagued by cost and schedule problems due to ineffective management. In contrast, the Administration contends that the government's procurement laws and regulations are a major cause of these problems. Its position is that the FAA acquisition process takes too long, lacks flexibility and accountability, and results in products and services that cost too much.

Mr. DELAY. Could you also assume that many of the procurement problems the ATC has are caused by the lack of acquisition management?

[The information follows:]

GAO's analyses over the past ten years have documented how ineffective acquisition management is the primary cause of cost overruns and schedule delays in FAA's acquisition projects. For example, in developing and implementing the AAS, the most costly project in FAA's modernization program, FAA seriously underestimated the effort required to accomplish the mammoth task of replacing the computer hardware and software in its en-route, terminal, and tower facilities and consolidating all en-route and terminal facilities. Also, FAA did not provide adequate management oversight of the contractors' software development progress. These management errors led to the AAS cost and schedule problems. We have recommended a more disciplined approach to acquisition management in FAA.

Mr. DELAY. If the improvements you have suggested in the acquisition management of the facilities and equipment account took place several years ago, would we be concerning ourselves with the idea of ATC modernization?

[The information follows:]

FAA will necessarily continue to modernize its ATC facilities and equipment to meet its mission needs. Effective management of the modernization program can occur within the current structure, and management reforms are needed whether or not corporatization occurs. Based upon GAO's many years of studying Defense Department and FAA acquisitions, we have recommended basic common sense practices, such as testing systems before committing to full production of those systems. When Administrator Busey came to FAA in 1989, the agency began to adopt these practices, but its record since then has been mixed.

FAA OPENING REMARKS

Mr. CARR. Our next witness is the new Administrator of the Federal Aviation Administration. It is a delight to have you here in your first appearance before our Subcommittee, and joining you is Gene Conti, also a first appearance before the Subcommittee. Mr. Stoer has been here before, and we welcome you back.

Mr. STOER. Thank you, sir.

Mr. CARR. Mr. Hinson, I am personally delighted to welcome you, because I have known you for many years and I cannot think of anyone who brings as varied a background in aviation as any Administrator we have had in recent years. We are looking forward to your leadership of the administration and we are delighted to have you with us today.

Your biography will be made part of the record because it is your first appearance, and as well for Mr. Conti, who I noted had excellent beginnings in education in Michigan.

Mr. CONTI. I also chose my wife from Michigan, sir.

Mr. CARR. Well, that is an excellent choice. And then you backslid somewhat and went to Duke, but Mr. Price rehabilitated you, I understand. So we are delighted to have you here.

We are going to put your full statement into the record and would encourage you to give us the high points so that we can maximize the time that we have for questions and answers.

Mr. HINSON. Well, thank you, Mr. Chairman, I am pleased to be here this morning in my first appearance before your Subcommittee and its distinguished Members. I have with me, as you have pointed out, Mr. Conti from the Department of Transportation and Mr. Nick Stoer, who is the Chief Financial Officer of the FAA. I need all the financial advice I can get at this early stage. I will read a brief statement that is part of what will go into the record.

In my first opportunity to appear before the Subcommittee, I am here to discuss the FAA fiscal year 1995 budget request. First, I would like to assure the Committee of my commitment to meeting the challenges of the future in the ever-changing aviation industry. I know this Committee's support for the FAA's budget and programs has been instrumental in helping us operate not only the world's busiest air traffic control system, but also the safest.

Since I took office last summer, I have had to confront two major challenges; first, the advanced automation system issues, and, second, the rapid introduction of global positioning, or GPS.

ADVANCED AUTOMATION SYSTEM

One of the first tasks the Secretary directed me to undertake was to see that the AAS program was brought under control. And, Mr. Chairman, I have to tell you what I have found so far about the AAS program is disturbing and unacceptable. Only some eight or nine months after the prior Acting Administrator and the contractor had testified before this Committee, we found that the real cost of the program was understated by at least \$1.2 billion and that the schedule was euphemistically described as "fragile". It now appears that if allowed to continue on its present course, this program could cost yet another billion dollars.

I want to assure you, Mr. Chairman, that the Secretary and I are committed to seeing that this totally unacceptable temporary result does not become final reality. I have already advised you and some Members of your committee of some of the steps that we have taken. First, previous program management has been replaced; second, I have directed the accelerated completion of several reports which should be completed within the next few weeks; and third, by the end of the month a new program manager will be integrating these reports to provide me a clear set of practical recommendations for the future of this program.

As soon as our requirements and overall program approach are decided, we will sit down with the contractors and hammer out a no-nonsense agreement. I have asked our contractors and lawyers to make sure that the agreement ensure that the government gets value for its money. That it provides for real assurance of performance in a timely and cost-effective manner; and, that it is realistically achievable.

We are committed to implementing a remedial program swiftly and putting those needed aspects of a modernization program back on firm ground. But I am not here to paint a rosy picture or promise miracles. Disassembling and rebuilding this eight-year-old program will demand hard work and constant attention. It is not an overnight job. There are some tough technological issues and some difficult choices to be made. I am confident that you do not want us to sacrifice careful and responsible analysis for the sake of speed alone. I can assure you that we are committed to working with you toward a rapid resolution of these open issues.

SATELLITE NAVIGATION AND COMMUNICATION SYSTEMS

Now, another area that I have had to focus my early attention on is satellite navigation and communication systems. I am proud to say that the FAA has moved with decisiveness to clear the way for large scale use of a global positioning system, GPS. The United States now leads the way internationally with the civil application of GPS. GPS is very important for it will provide an accurate and more reliable navigation system which will result in millions of dollars of savings to airlines through the use of more direct routing and less separation. I should say less separation in a safe manner. I am actively looking at ways to provide expanded GPS services at the earliest possible date. We will work closely with this subcommittee as we make progress.

Even as we have addressed these two initial challenges, we have developed road maps for our direction. The FAA's strategic plan and the general aviation plan both envision strengthening partnerships with FAA customers.

FAA STRATEGIC PLAN

We recently completed the FAA strategic plan. This plan includes, among other things, a major outreach to FAA customers and incorporates their feedback. We had a series of meetings with industry and aviation people and listened carefully to what they had to say. Recommendations from the Airline Commission Report, with which you are familiar, and input from the Radio Technical Committee for Aeronautics are very important.

GENERAL AVIATION ACTION PLAN

Last month, we also introduced a revised general aviation action plan, and that plan outlines a broad range of initiatives to lower the cost of flying for the general aviation community. It also boosts safety and technology and importantly guarantees fair and equal access to airways and airports, a major concern of general aviation. Both of these plans are intended to instill responsibility and accountability at all levels of management throughout the FAA.

MANAGING WITH LESS RESOURCES

Let me now turn to the challenges of using our resources more efficiently. We are committed to increasing performance and reducing costs. We have worked to shape a budget enabling the FAA to meet increasing demands without proportional increases in resources. We are confident we can achieve our goals by empowering our diversified work force, increasing accountability, improving productivity brought about through advances in technology, and streamlining the management structure and field operations of the agency.

We intend to do what must be done even as we work with 3,000 fewer people, which are the reductions in staffing we will realize before the end of fiscal year 1995. Our fiscal year 1995 budget proposes nearly a quarter billion dollars of staffing reductions, programmatic streamlining and efficiencies. Staffing reductions have been targeted at the non-safety work forces and management layers in an effort to protect the huge investment in our uniquely trained safety work forces. The non-safety work forces will continue to decline through a combination of events, continued application of a hiring freeze, attrition, early out and buyout authority, and initiatives to streamline organizations and reduce supervisor-to-employee ratios.

Now, even with our downsizing efforts, we are requesting an increase of 305 additional staff in the flight standards and aircraft certification work forces, an increase consistent with the findings of the General Accounting Office and the Inspector General and our own internal evaluations. This will restore the number of inspectors almost to the level we had in fiscal year 1991. Our budget maintains current staffing levels in the air traffic control, maintenance and security work forces, except for reductions made possible due to efficiencies associated with contracting out Level 1 towers and streamlining airway facility operations.

AIRPORT IMPROVEMENT PROGRAM

Now, let me talk for a moment about the Airport Improvement Program, or AIP. Through the AIP, the Nation's airports are able to enhance safety and airport-specific needs, improve system capacity, reduce system delays, make safety and security improvements and mitigate noise and other environmental consequences of aviation. We are working on three elements related to AIP. They are, first, ensuring airports' generated funds are used only for airport-related purposes; second, reviewing the letter of intent program; and third, enhancing the AIP investment criteria.

In February, Mr. Chairman, you released a report showing that 17 of 33 major airports were using airport-generated funds for non-airport purposes. I want to emphasize that the department and the FAA are placing greater emphasis and priority on enforcing prohibitions against revenue diversion. FAA is working with the Office of the Inspector General to assure that airport sponsors fulfill airport revenue obligations. We will be tightening the guidelines for audits and expanding our education of grant requirements. As you know, the Secretary and I were personally involved in a review of this particular issue with the Los Angeles Airport Authority last fall.

We also have recently reviewed our Letter of Intent Program and have developed a proposed LOI policy which assures that we use LOIs only to provide the best system-wide capacity benefits. This new policy proposes to allow funding for airside development projects, like runway noise and taxiing airways, and requires rigorous analyses of the sponsor's financial commitment and the benefit-to-cost ratio of the projects.

We will work to enhance the AIP investment criteria you referred to earlier so that we include goals and performance measures for a national airport system that is fully consistent with the national transportation system being developed by the Secretary. In addition, we are currently considering various innovative financing mechanisms to encourage more capital investments from the private sector to enhance the transportation infrastructure.

AIR TRAFFIC CONTROL CORPORATION

Before closing, I want to address the issue of corporatizing air traffic control. For more than 40 years, I have been a customer of the FAA. I flew my first flight in the Navy in 1954 and talked to air traffic control then and I have been talking to them constantly ever since. I know how important it is for the FAA to meet our customer's needs. I also understand what it takes to make an organization function and to function efficiently. That realization underlies much of what we have done thus far.

To meet its future goals, the FAA must be nimble. We have to have the freedom to streamline our operations, manage our people more efficiently, change procurement policies to keep up with technology, and run our business like a business.

In safety, our abiding concern must and will remain our number one priority. I believe these goals are best served by creating a government corporation for the air traffic control system. As air traffic and customer requirements increase, we must ensure we can meet demands while maintaining a safe, reliable system we are known for worldwide. Corporatization of ATC moves us toward that goal.

Mr. Chairman, this concludes my prepared remarks. I want to thank you and other Members of this Committee for your continued support and interest in the FAA's activities, and I will be pleased to answer your questions.

Mr. CARR. Well, thank you, Mr. Hinson.

[The prepared statement and biography of Mr. Hinson and biography of Gene Conti follow:]

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
STATEMENT OF THE HONORABLE DAVID R. HINSON
ON THE FISCAL YEAR 1995 BUDGET REQUEST
BEFORE THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON TRANSPORTATION
APRIL 19 - 20, 1994

Mr. Chairman and Members of the Subcommittee:

This is my first opportunity to appear before the Subcommittee today to discuss the Federal Aviation Administration's (FAA) FY 1995 budget request. With me today is Gene Conti, Deputy Assistant Secretary of Budget and Programs.

First, I would like to assure the Committee of my commitment to meeting the challenges of the future in the ever-changing aviation industry. I know that this Committee's support for the FAA's budget and programs has been instrumental in helping us operate not only the world's busiest ATC system, but also the safest. Since taking office last summer I have had to confront several major challenges and opportunities. We'll talk today about actions I've taken on the Advanced Automation System (AAS), the global positioning satellite use for precise navigation, and the proposal to create an air traffic control corporation. I have also had to shape a budget and strategies to enable FAA to meet increasing demands without proportional increases in resources. This will be achieved by empowering our diversified workforce, increasing accountability for our actions, improving productivity brought about through advances in technology, and by streamlining the management structure and field operations of the agency. By the end of fiscal year 1995, we will have downsized by more than 3000 people.

One of the first tasks the Secretary directed me to undertake was to see that the AAS program was brought under control. What I found was disturbing and unacceptable. Only some eight or nine months after the prior acting Administrator and the contractor had testified before this Committee last spring, we found that the real cost of the program was understated by at least

\$1.2 billion, and that the schedule was euphemistically described as "fragile". It now appears that, if allowed to continue on its present course, this program could cost yet another billion dollars. Both the Secretary and I are committed to seeing that this totally unacceptable result does not become a reality.

I have already advised some of you of the initial steps I am taking. First, past program management has been replaced. Second, I have directed the accelerated completion of several reports. These should all be completed within two weeks, and I have directed the new program manager to integrate these reports and provide me a clear set of practical recommendations for the future of this program by the end of next month. As soon as our requirements and overall program approach are decided, we will sit down with the contractors and hammer out a no-nonsense agreement. I will demand that any agreement ensure that the government gets value for its money, provide for real assurance of performance in a timely and cost-effective manner, and is realistically achievable.

We are committed to implementing a remedial program swiftly, and putting those needed aspects of a modernization program back on firm ground. But I'm not here to try to paint a rosy picture or to promise miracles. Disassembling and rebuilding this 8-year old program will demand hard work and constant attention. It is just not an overnight job. There are some tough technological issues and some difficult choices to be made. I am confident that you do not want us to sacrifice careful and responsible analysis of our options for the sake of speed alone, but I can assure you that we are committed to working with you toward a rapid resolution of these issues.

Another area where I have focused my attention is satellite navigation and communication systems. I am proud to say that the FAA has moved with decisiveness to clear the way for large scale use of the Global Positioning System (GPS). Not only will GPS provide a more accurate and more reliable navigation system, it will provide many millions of dollars in savings to airlines

through the use of more direct routing and less separation. Based on the significant benefits to our aviation users, I am actively looking at ways to provide expanded GPS services at the earliest possible date. We will work closely with the Subcommittee to define the best way to make GPS available as soon as possible. I am proud to say that the FAA and the United States are leading the way internationally in the application of GPS satellites to air navigation, and will continue to do so.

Prior to being sworn in as FAA's Administrator, I held various positions in the aviation community from naval aviator, engineering pilot, fixed based operator to air carrier and aerospace executive. As a former FAA customer, I have a unique advantage in understanding the needs of our customers. To continue to effectively and efficiently meet our customers' needs in the twenty-first century, the FAA must change. I believe creating a government corporation for the Nation's air traffic control system would be a positive step for the future. Through corporatization, the FAA will be able to streamline its operations and provide more efficient, more cost-effective, and more responsive services to its users while still maintaining its high level of safety.

Our customers range from airlines, to general aviation pilots, to airline passengers, to communities seeking relief from aviation noise and pollution, and those seeking to expand their aviation resources. We have undertaken major outreach efforts as part of our strategic planning process and I have linked achievement of our goals to my evaluation of senior officials' performance. In addition, we have paid close attention to the Airline Commission Report recommendations. We have worked closely with industry in a number of areas under the aegis of the Radio Technical Committee for Aeronautics.

FAA has also made a pledge to strengthen its partnership with general aviation. Last month we introduced a revised General Aviation Action Plan. The plan outlines a broad range of initiatives

to lower the cost of flying for the general aviation community, boost safety and technology, and guarantee fair and equal access to airways and airports. The goals of the general aviation action plan are: improved safety; better FAA service; fostering product innovation and competitiveness; promoting fair system access and more system capacity; and affordability. The plan represents a team effort between government and industry.

Let me turn to the challenges of doing more with less. FAA is committed to increasing performance and reducing costs. Our fiscal year 1995 budget proposes nearly a quarter billion dollars of staffing reductions, programmatic streamlining, and efficiencies within the agency. Staffing reductions have been targeted at the non-safety workforces and management layers in an effort to protect the huge investment in our uniquely trained safety workforces. The non-safety workforces will continue to decline through continued application of a hiring freeze, attrition, use of early out and buy-out authority, and agency initiatives to streamline organizations and reduce supervisor to employee ratios. We are aggressively pursuing business process reengineering to simplify our procedures and to take greater advantage of automation to deliver services internally and with our customers.

Even with our downsizing efforts, our budget requests 305 more staff in flight standards and aircraft certification workforces -- an increase consistent with findings of the General Accounting Office, the Inspector General, and our own internal evaluations. This will restore the number of inspectors almost to the level that we had in fiscal year 1991. Our budget maintains current staffing levels in the air traffic control, maintenance, and security work forces, except for reductions made possible due to efficiencies associated with contracting out of Level 1 towers and streamlining airway facility operations.

Through the Airport Improvement Program (AIP) the nation's airports are able to enhance airport-specific needs; improve system capacity and reduce system delays; make safety and security improvements; and mitigate noise and other environmental consequences of aviation.

In February, Mr. Chairman you released a report showing that 17 of 33 major airports were using airport-generated funds for non-airport purposes. I want to emphasize that the Department and FAA are placing greater emphasis and priority on enforcing prohibitions against revenue diversion. FAA is working with the Office of the Inspector General to assure that airport sponsors are fulfilling their airport revenue obligations. We will be tightening the guidelines for audits and we will be expanding our education of grant requirements. The Secretary and I were personally involved in the review of this particular issue in Los Angeles this past fall.

We also have recently reviewed our Letter of Intent (LOI) program. As a result, we have developed a proposed LOI policy which assures that we use LOIs only to invest in airside development projects which provide the best system-wide capacity benefits. This new policy proposes to allow funding for airside development projects. It will require more rigorous analyses of the sponsor's financial commitment and the benefit/cost ratio of the projects, especially given the limited amount of funds available for LOI projects. The policy will be published in the very near future for comment by all interested parties. The FAA intends to use this policy in considering all future LOI requests. However, no new LOI's can be issued until the FAA has enabling legislation.

We are implementing a program to enhance the AIP investment criteria. The program is ongoing. Ultimately, it will include goals and performance measures for a National Airport System that is fully consistent with the National Transportation System. In addition, we are currently considering various innovative financing mechanisms to encourage more capital investments from the private sector to enhance the transportation infrastructure.

Before concluding my statement, I want to reemphasize FAA's commitment to revitalizing the aviation industry through the corporatization of the air traffic control system. Our intent is to design an organization which reflects the reality of a highly-competitive global marketplace where technology is rapidly evolving. We believe through this revitalization our future can be much brighter than any of us have ever imagined.

Mr. Chairman, this concludes my prepared remarks. I want to thank you and the other members of this committee for your continued support for and interest in FAA's activities and programs. I will be pleased to answer any questions you or other members of the Subcommittee may have at this time.

FEDERAL AVIATION ADMINISTRATION

ADMINISTRATOR

HINSON, DAVID RUSSELL

APPOINTED: August 1993

TYPE OF APPOINTMENT: Presidential

PAY CATEGORY: Executive Schedule II

DOB: March 2, 1933



BIOGRAPHICAL SUMMARY

January 1992 to August 1993 - Executive Vice President,
Marketing and Business Development, Douglas Aircraft
Company, McDonnell Douglas Corporation
1985 to November 1991 - Chairman and CEO, Midway Airlines,
Chicago, IL
1978 to 1985 - Director, Midway Airlines, Chicago, IL
1973 to 1978 - President, Hinson-Mennella, Inc.
1970 to 1973 - Executive Assistant to the General Manager,
Air West, Seattle, WA
1968 to 1972 - Director, Flight Standards and Engineering,
Air West, Seattle, WA
1963 to 1968 - Director and Captain, Flight Training, West Coast
Airlines, Seattle, WA
1961 to 1963 - Captain and Flight Instructor, United Airlines
1958 to 1961 - First Officer, Northwest Airlines
1955 to 1958 - Pilot, U.S. Navy, Captain

EDUCATION, PROFESSIONAL MEMBERSHIPS, AND LICENSES

1955 - University of Washington, B.A., General Studies and
Business
1972 - Stanford Graduate School of Business, GSB
Member, Advisory Board, Graduate Schools of Business, University
of Chicago and University of Washington
Trustee, Naval Aviation Museum Foundation
Airline Transport Pilot License
Commercial, Instrument, Flight Engineer Pilot licenses

EUGENE A. CONTI, JR.
BIOGRAPHICAL INFORMATION
APRIL 1994

Gene joined the Department of Transportation as the Deputy Assistant Secretary for Budget and Programs in September, 1993. The Budget office in DOT provides policy advice to the Secretary and other senior officials on budget and financial management matters, performance measurement of DOT programs, and execution of the department's nearly \$40 billion annual budget.

Prior to coming to DOT, Gene served as Administrative Assistant and Chief of Staff for Congressman David E. Price of the Fourth District of North Carolina from 1987 to 1993.

After earning his bachelor's degree in sociology at Eastern Michigan University in 1971, Gene attended graduate school at Duke University in Durham, North Carolina from 1972-78 where he was awarded a Ph D. in Anthropology and an M.A. in Public Policy.

Awarded a Presidential Management Internship in 1979, Gene served as a budget analyst at the Office of Management and Budget (OMB) from 1979-85, including service as a special assistant to Budget Director David Stockman in 1985. He was the recipient of several awards from outstanding performance during his tenure there.

From late 1985 until early 1987, Gene directed the Office of Planning and Management in the U.S. Treasury Department. He joined Congressman Price's staff at that time.

Gene was born and raised in Pittsburgh, Pennsylvania where his father was a physician and his mother was a homemaker with seven children. He married Jennifer Wingard in Coldwater, Michigan in 1968 and their two sons, Aidan and Marcus, were born in 1971 and 1974. Aidan graduated from Duke University in May 1993 and Marcus is a sophomore at Oberlin College. The Conti family resides in Chevy Chase, Maryland.

IMPACT OF STAFFING REDUCTIONS

Mr. CARR. We have a large number of questions we are going to ask, mainly for the record. I am going to go through a number of them to highlight some of the Committee's major concerns.

Let me first deal with the issue of staffing reductions. According to data presented with your budget, the FAA expects most indicators of aviation work load to increase in fiscal 1995 after two years of either flat or declining activity.

You say that revenue passenger miles are expected to go up by about 5.2 percent. The number of IFR aircraft handled probably will go up, according to your estimates, 1.8 percent, and operations at airports with FAA towers should go up about 1.5 percent. And we just mentioned that we are going to see a staff reduction of about 4.1 percent compared to 1993 levels. Some of the testimony indicates it could go as high as 6 percent.

Now, how are we going to resolve this? We have more work and less people to do the work. That implies that we are going to assure safety, with greater productivity at a time that we have delays in implementing some of the investments that were designed to enhance that productivity. So can you draw us a picture and tell us how this all gets resolved?

Mr. HINSON. How much time do we have? I don't want to be facetious on purpose.

The question of downsizing and safety is always sensitive. Therefore, at the outset, when we were given our orders to reduce our overall staff by some 12 percent, or six-and-a-half thousand people by fiscal year 1999, we carefully, I think, designed a process that would allow us to do that without necessitating RIFs or furloughs. A combination of the hiring freeze, the buyout, the early out, normal attrition, and the closing of the Level 1 towers will give us, we believe, the six-and-a-half thousand people required without additional unpleasant actions like furloughs and RIFs.

Because the hiring freeze has been in place now for over a year and because we are working on the contract tower issue already and now the buyout, which today is around 2,200 to 2,300, we are close to 50 percent of our 1999 target already. Faced with that loss of personnel, I have asked the agency to look at two things. Those things we have to do to provide the safety oversight that we want to provide and need to provide; and, those things which we have been doing that are nice to do but not necessary to do. We will then realign the agency accordingly.

As a result of that, buyouts were not offered to almost all of the safety work force. That is, almost all of the safety work force was excluded. In fact, we do not expect to lose more than 60 or 70 controllers from supervisory positions and other overhead positions in this buyout. So the buyout will have no direct safety impact whatsoever on the safety work forces, and particularly the controller work force. As I stated in my opening statement, we actually want to add 305 safety inspectors to that part of our business.

We are going to have to work smarter. We are going to curtail some of those things we have been doing in other areas that are nice to provide but not necessary. Some things we will be doing less frequently in that area as well. I think, in a way, this is going to

cause us to reassess the way we do business in the FAA. It is no different running the FAA than any other business when you have to downsize. You have to find the efficiencies necessary to achieve your goals and we are going to do that.

HANDLING INCREASED CAPACITY AFTER STAFF REDUCTIONS

Mr. CARR. I am trying to get a picture, though, of the overall theoretical capacity to handle aircraft. I mean, part of the answer may be that the skies are not as congested as people who want high speed rail suggest.

We have to worry about it from the standpoint of the peaking problem. We know there are certain times of the week, certain hours of the day where you have a peak load problem. I am trying to get my mind around the idea that we are going to have more operations, and I am trying to equate that with the notion of what the total theoretical capacity of the air traffic control system is in these critical peak times.

I am not worried about 3 a.m. in most of America, but I am just wondering, how do we manage the peak load hours of capacity with a significantly reduced force and without having all the major productivity enhancements that we have been talking about all these years on line yet?

Mr. HINSON. I understand now. All of the programs that have been planned by my predecessors are contained in the strategic plan which deal with the capacity improvements for the air traffic control system are really independent of this downsizing effort. They are continuing. They are funded and budgeted, and they are being developed.

Last year, for instance, we put over 660 new pieces of equipment into the field. While the AAS program is an exception and has been troubled and is troubled, and I am sure we will talk about that, a lot of the capacity enhancements and improvements from a technology standpoint which the agency has been working on for years are coming on line.

I saw a report the other day of the original NAS plan that was conceived in 1980 and 1981 which had 54,000 odd black boxes or pieces of equipment. We have put 47,000 of those into the field. Eighty-seven percent of the original NAS plan is in place. We continue to provide new equipment to the air traffic control operation every day, literally. The new equipment includes new radars, new communications, improved computers for the centers and other new and existing facilities.

So you are correct that we are in a growth business with air traffic control. It is growing in terms of demand. In fact, revenue passenger miles are growing to about 3-and-a-half percent average over the next 12 years. At that rate, assuming it is uninterrupted for 17 years, we will as well double the revenue passenger miles that we have today. Seventeen years sounds like a long way away but it is not in terms of planning large systems. So we will have to work hard to continue to put these new pieces of equipment out and handle the growth that we expect. I believe that this downsizing we are undergoing in terms of personnel at the moment is apart from our ability to handle the capacity demands for air traffic control.

FAA FORECASTING

Mr. CARR. Help me with the analysis. I would like to ask a question as a subset to this. I would like to know a little bit about the methodology. At some point maybe somebody could give me a paper from the FAA about how you forecast air traffic.

This Committee has in the last few years taken a great interest in forecasting. Forecasting, particularly in the transit area, we have discovered, tends to be largely promotional and it does not get real until somebody has a problem. I am interested as well in having the FAA give us a paper on how the FAA conducts its forecasts and then maybe what kind of an audit you have been able to do to see if your forecasting actually is accurate.

And you can maybe supply that for the record because that is just too extensive——

Mr. HINSON. I would make one comment, if I may. I asked the same question when I arrived at the FAA about the planning process. The forecast the FAA publishes every year is used worldwide and held in high esteem. I said, go back to 1983 and tell me what you forecasted in 1983 for air traffic movements, revenue passenger miles, and so forth for 1993. What was your forecast in 1983 for 1993? They missed it by less than eight-tenths of 1 percent. So, historically, at least in that 10-year period, they were dead on. Of course, we do not know whether we will be dead on 10 years from now. If history is an indicator, I think the agency is pretty good at it.

Mr. CARR. Well, perhaps you can supply for the record a brief outline, no more than five pages, of your methodology and some comments on what kind of historical lookbacks you have had to see what kind of fidelity you have managed to come to.

Mr. HINSON. We will be pleased to.

[The information follows:]

Forecasting aviation activity is an essential component of the FAA's planning process. The forecasts are used to determine staffing levels and capital expenditures that will be needed to accommodate growth of activity while maintaining a safe and efficient system. The forecasts are also used for short-term budget preparation, cost-benefit analyses, and safety analyses.

The FAA's forecasting process is a continuous and interactive one that involves the FAA Forecast Branch, other FAA Offices and Services, other Government agencies, and aviation industry groups. In addition, the process uses various economic and aviation data bases, econometric models and equations, and other analytical techniques.

The Federal Aviation Administration has developed forecast models and established a forecast process that attempts to anticipate changes that may affect the future direction of the industry. Using this forecast process, the FAA provides 12-year forecasts of workload measures annually for aviation-related manpower and facility planning. (The 12-year forecast is FAA's basic forecasting effort.) The FAA frequently sponsors workshops to provide expert input to the forecasts, as well as to critique techniques and practices currently used by the FAA and other aviation forecasters and to examine the outlook for the aviation industry and its prospects for future growth. The workshops focus on the forecasting process and ways to improve the reliability and utility of forecasting results.

The FAA considers at least 133 variables when producing a set of national forecasts. (The number does not include derived subtotals and totals.) Of these, four economic independent variables are obtained from sources external to the FAA and the FAA has no control over these truly exogenous variables. There are 12 quantifiable air carrier forecast assumptions and 4 quantifiable regional/commuter carrier forecast assumptions. Within justifiable limits, these forecast assumptions are under the control of the analysts. There are 83 aviation variables that are not FAA workload measures but that influence the workload measures in one way or another. Finally, there are 30 aviation variables that are the workload measures used by the FAA for policy and planning considerations and for manpower and investment planning.

The FAA forecasting process is an interactive system that combines econometric and time series model results with aviation industry forecasts, expert opinions, and anticipated policy impacts to derive a set of FAA aviation forecasts that are used in the decisionmaking process. The flow diagram on the next page shows a generalized version of the FAA aviation forecasting process for commercial air carrier demand. Similar models are used for other forecast elements.

The first step in developing the forecasts is to enter the economic and demographic variables into a set of econometric models or equations that represent a simplified version of the real world. The degree of accuracy of the forecasts of aviation activities depends on both the accuracy of the forecasts of the independent variables and the ability of the models to portray activities in the real world. The basic model for revenue passenger miles uses two primary inputs--Gross Domestic Product and average fare or yield projections. The progression of the forecasting for air carrier demand is generally as follows:

1. Revenue Passenger Miles
2. Load Factor
3. Available Seat Miles
4. Average Passenger Trip Length

5. Seats per Aircraft
6. Aircraft Miles
7. Aircraft Hours
8. Departures
9. Fleet requirements

The above progression is followed for the domestic and international market segments up through number 8. Adding the estimates provides system total operations, upon which fleet requirements are based. Forecasts of workload measures for the FAA are developed on the above outputs, as well as a statistical review of additional data on towers, centers and other facilities.

The mechanical execution of forecast models is only the first step in producing a set of forecasts. In general, the models and equations portray a complex system. They cannot account for a number of political, social, psychological, and economic variables and for all the interrelated actions and reactions that eventually lead to a particular set of results. It is particularly important, therefore, that the initial model results are reviewed, revised, and adjusted to reflect the analysts' best judgment of the impacts of the events occurring or expected to occur during the forecast period.

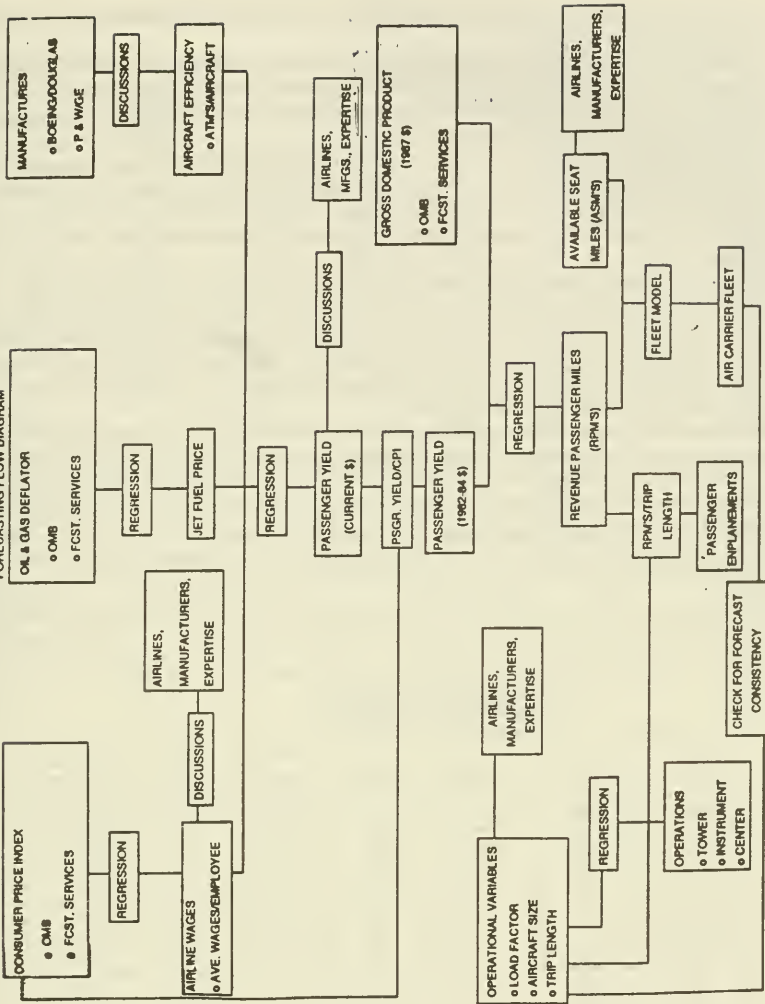
The FAA forecasting process is both continuous and iterative. As such, it is important to evaluate the forecast results and to determine the basis of the deviations of the forecast values from the actual values observed in the real world. The analysis of the errors generally identifies the causes of the deviations and helps determine the proportion due to improper model specifications, erroneous forecasts of independent variables, erroneous forecast assumptions, or incorrect analysts' judgments and opinions. If warranted, the forecast error analysis may lead to a reformulation of the model and to additions or deletions of independent variables, revisions of forecast assumptions, and/or changes in analysts' opinions and judgments about future events.

It is essential that the FAA forecasts of the demand for services at the FAA towers, air route traffic control centers, and the flight service stations be accurate. Large forecast errors can lead to inefficient allocation of resources which, in turn, could lead to capacity constraints and delays or to excess capacity in the National Airspace System. For this reason, FAA must continuously evaluate the forecasting process and its results.

The evaluation of the forecast process proceeds on several fronts. On a monthly basis, FAA tracks its short-term forecasts of aircraft operations, instrument operations, IFR aircraft handled, and flight services vis-a-vis the actual counts at the facilities. This tracking system alerts FAA management to unexpected deviations from the trends suggested by the forecasts. Inquiries are then initiated to determine the cause(s) of the differences and revised short-term forecasts may be generated, if necessary.

To help the analysts make correct decisions and informed judgments when developing the forecast assumptions, FAA holds meetings with industry representatives to discuss industry trends, recent developments, and possible future courses of events. Every two years, for example, in cooperation with the National Academy of Sciences, Transportation Research Board (TRB), the FAA sponsors a "forecast assumptions workshop." One such workshop was held in September 1993. This workshop is attended by 70 to 80 industry planners and forecasters representing the airlines, aircraft manufacturers, engine manufacturers, and other industry groups.

FAA COMMERCIAL TRAFFIC NATIONAL FORECASTING FLOW DIAGRAM



FAA also requests public feedback on the forecasts we develop, and we invite state, regional and local participation in the process.

Periodically, FAA prepares a technical report that compares the accuracy of the forecasts of key workload measures with the accuracy of forecasts of economic variables prepared by major forecasting services. Based on the results of these studies, the FAA forecasts compare favorably with those produced by these major forecasting services.

The table on the last page provides a measure of the accuracy of FAA workload forecasts. The table compares forecast data for both the short-term and the long-term periods. The short-term period, 1 to 5 years, is the critical period for manpower planning; the long-term period, for 10 years out, is important for facility planning. The workload measure reviewed is aircraft handled.

For short-term trends, the forecast errors normally tend to be small: the 1993 forecast for ARTCC aircraft handled was right on the mark--37.5 million. Although total en route center activity was exactly as forecast, there were relatively large variances among the individual user groups. Military activity was 5.2 percent lower than forecast but commercial activity (the sum of air carrier/commuter activity) was 1.2 percent higher than predicted. Fortunately, the two forecast errors compensated for one another.

The 10 year out forecast errors are high because of unanticipated external events that have had long-term impacts on the aviation system. Contributing external factors include the Gulf War and the concomitant rise in fuel prices, the outbreaks of terrorism in 1986 and 1991, and the failure of general aviation to respond to the economic recovery of the 1980s. Further, the FAA does not use cyclical economic projections in preparing its long-term forecasts. As a result, the recessions of 1980, 1982, and 1991 were not considered in any of the forecasts prepared prior to 1980.

FAA ARTCC AIRCRAFT HANDLED FORECAST EVALUATION

Year Being Forecast	Actual Activity (Millions)	Forecast Activity Level (Millions) Published—Years Earlier					
		1 Year	2 Years	3 Years	4 Years	5 Years	10 Years
1987	35.8	35.4	35.1	35.0	34.0	34.0	39.6
1988	36.4	37.0	36.6	36.1	36.1	35.1	42.8
1989	36.6	37.2	38.0	37.6	37.2	37.4	42.0
1990	37.4	37.8	38.2	39.2	38.7	38.4	42.2
1991	36.4	38.5	39.1	39.7	40.3	39.6	40.3
1992	36.7	37.3	39.6	40.1	40.8	41.4	39.3
1993	37.5	37.5	38.3	40.6	41.0	41.6	40.7
1994		37.8	38.4	39.4	41.5	41.9	43.6
1995			38.5	39.3	40.3	42.7	43.6
1996				39.3	40.0	41.1	44.0
1997					40.2	40.7	46.0
1998						41.1	46.1
1999							46.0
2003							44.9

Year Being Forecast	Forecast Activity Percent Error Published — Years Earlier					
	1 Year	2 Years	3 Years	4 Years	5 Years	10 Years
1987	(1.1)	(2.0)	(2.2)	(5.0)	(5.0)	10.6
1988	1.6	0.5	(0.8)	(0.8)	(3.6)	17.6
1989	1.6	3.8	2.7	1.6	2.2	14.7
1990	1.1	2.1	4.8	3.5	2.7	12.8
1991	5.8	7.4	9.1	10.7	8.8	10.7
1992	1.6	7.9	9.2	11.1	12.8	7.1
1993	0.0	2.1	8.3	9.3	10.9	8.5

Note on how to read this table: In 1992 we forecast 37.5 million aircraft would be handled in 1993. In fact 37.5 million aircraft were recorded, meaning the forecast was right on the mark. In 1988 we forecast 38.2 million aircraft would be handled in 1990. This forecast was 2.1 higher than actual. The 1993 forecast is shown in bold italics.

FORECASTING MEASUREMENTS OF CAPACITY

Mr. CARR. Moving beyond that, though, I have been on this committee now over 10 years. I do not think we have ever really discussed, or had information about, measurements of capacity. I know you have them, but I do not think we have really discussed them in a way that allows us to get our hands around the idea of capacity potentials.

And I know that it would probably be impossible, or maybe not even useful, to reduce it to a single number. You would have to skip too much or summarize too much to make that happen. But if we could say on average, a week in the spring, what is the total capacity of the air traffic control system to handle aircraft before you run out of space limitations. I mean, you just cannot put two airplanes in the same space. Even if you could do it safely, you cannot. Physical impossibilities or safety considerations.

Mr. HINSON. I do not know the specifics of all of the models and the math models that we have in the agency for modeling capacity. We do have them and we do a lot of this work. We work with a number of the contractors who provide assistance in looking at questions of this nature rather than——

Mr. CARR. The algorithms at flow control give you some——

Mr. HINSON. Yes. I am only hesitating because what I think I really want to tell you is—I don't want to give you more papers than you want to read. For you and the committee we would be happy to make a presentation in any form you would prefer, written or oral or both, and take you through the entire capacity question. Because it is a very good question. It is one the air carriers and the industry ask a lot. That is one we have spent a lot of time on and it is rather complicated.

Mr. CARR. Well, to some extent I think we end up, in the political world, chasing ghosts and goblins and we do that a lot, but one of the ghosts and goblins is the notion that the skies are congested and everything is about ready to break and fall apart. And, quite frankly, my gut tells me that ain't so, and that it is used by a variety of interests to further their particular interest that does not happen to be very friendly to aviation.

It would be helpful if we could get the statistical analysis part of the FAA in forecasting growth. And if demand is so good and so recognized worldwide, is there not some statistic that could be popularized the same way to forecast the supply? We do not see the supply numbers. We always see the demand numbers, but never the supply numbers.

Maybe it turns out this Committee or FAA management would benefit from knowing some supply measures from the standpoint of saying, well, maybe this is not a real cost-beneficial thing to do right now; maybe in certain parameters, in certain geography, in certain time frames, there really is not as much of a need as we have all been assuming, and maybe there are some things we can defer.

Mr. HINSON. We would be pleased to give you a short dissertation in writing for the record. I will say that one of the advantages from forecasting the aircraft movements and instrument operations for the air traffic control system and approaches is that such fore-

casts are used by our air traffic services organization to forecast their needs in the outyears. These forecasts have been an invaluable guide in that context, but this gets very broad and there is a lot of information.

Mr. CARR. Sure. Well, I have many, many more questions but I have used some time now.

[The information follows:]

The question of supply, in the context you raise it, gets right to the heart of the planning, budgeting and operating process. By supply, we mean the actual capacity which airlines can be expected to operate in the future. We do forecast this supply when we forecast the number of operations which are consistent with the demand we foresee. I think more to the point of your question, one can talk about supply in the context of the number of staff and physical facilities needed to handle a level of demand. Again, in the budget and planning process, we do this. However, we forecast supply in the context of a response to demand, not as a separate entity.

In the planning and budgeting process, we look at demand, then look at the responses to demand—namely differing levels of facilities, equipment and personnel to satisfactorily handle the level of demand. Thus, in the budget process, supply is always a response to demand. It can not be independently forecast. Thus, when we argue that our demand forecasts were generally good, we argue that our supply responses were generally good.

I would like to point out one other aspect of the relationship between long term and short term supply. That is in the area of timing. We are constantly fine tuning supply decisions to the changes in demand. For example, in 1984 we might (hypothetically) have forecast a need for X number of controllers in 1994. As the year 1994 approaches, we do not slavishly retain this value, but fine tune the need for controllers to changes in the demand. Thus, no huge error is made, as long as we readjust our supply estimates. Thus the possibility for major error is reduced in practice as the budget, and especially the supply response to demand, is revised.

Mr. CARR. Mr. Wolf.

TENURE OF MR. HINSON

Mr. WOLF. Thank you, Mr. Chairman.

Mr. Hinson, I want to welcome you and I appreciate the job that you are doing.

I have some questions, and a number I will offer for the record, because we have talked in our office so we do not have to go into all these things, but just for the record, I have been concerned about the lapses of the operation of the FAA. It seems very difficult for administrators to get a handle, as well as the Congress, on the AAS and others.

One of the concerns I have had are people not staying long enough. For the record, do you plan on staying to the end of this term? This is an important question. We have spoken about this.

Mr. HINSON. Yes, sir.

Mr. WOLF. Do you plan on staying through this administration or this four years?

Mr. HINSON. As you know, Congressman, I serve at the pleasure of the President and my boss, the Secretary of Transportation. If I can satisfy their needs and expectations, I will remain through this first term of the President, yes, sir.

FAA COOPERATION ON AAS AUDITS

Mr. WOLF. I appreciate that. We have spoken with regard to the AAS, and I will ask a general question so you can elaborate for the record, but before I do, let me read what I asked Mr. Mead with regard to the Inspector General's report. It said, in the initial re-

port, one of the problems identified by the Inspector General was a lack of responsiveness on the part of the FAA to the numerous previous audits of the AAS program performed by the Defense Contract Audit Agency, DCAA.

According to the IG, these previous audits have been inhibited by the reluctance of the FAA to provide technical assistance so that data can be properly evaluated. According to the IG, some FAA officials refuse to talk to DCAA auditors looking into IBM's cost and pricing.

Do you want to elaborate a little for the record? I think you have come in and done a good job, and I think you have a handle on it, but this is an attitude problem. In fact, I think attitude sometimes is as important as aptitude. Do you have any comment you want to make about that?

Mr. HINSON. Yes, sir. I appreciate your comments. I am still quite new at the FAA having been here seven months or so, or whatever it has been so far. I certainly concur with the statement that was made by Allen Li when he testified in front of me that it takes a year to find your way around. It is all different in terms of the way business is done, so forth and so on.

However, there is something that is not different and that is the way people behave in any environment where you are running a business and have performance and expectations of performance.

I want to say two things about that. One is I do hope to change the culture of the FAA to the degree that I can change it in a positive way. And I want to encourage openness and frank discussion. I want to get the issues on the table, and have them discussed openly. I want the FAA to begin to feel that we are a team and that we all have the same objective; that we are all going down the same road toward the same goal; and that the real challenge is how to do that in the most efficient and effective manner and enjoy it while we are doing it. Life is too short to go through the day with a long face all the time and in this constant adversarial relationship occasionally because we have a program problem.

By that I mean I have to earn the respect of the FAA employee group and management group. When I have earned their respect, I think that we will be able to have open, free, and encouraging debates and get away from perhaps the culture that you suggested in that report that would be one of a closed system that is not comfortable with making itself open to others. I want to do business actually just the opposite.

FAA COOPERATION ON IG AUDITS

Mr. WOLF. Would you be inclined to reassign people that were recalcitrant? Like if the IG were to do another report two years from now and to say that on another system DCAA had asked or the CNA had asked, and there was the same attitude? Would you be inclined to reassign or fire those individuals?

Mr. HINSON. Well, I think I have the right as every manager has the right to demand performance. That also implies that we set a clear performance standard and that the people involved understand they have obligations under that performance standard. I am not certain that I would accept carte blanche another's recommendations for reassignment.

Mr. WOLF. No, they are not recommendations, it is my asking. Because we went through the AAS and I offered an amendment last year to do precisely what you are doing with (NA). It was carried in this committee but eliminated on the Senate side.

We have heard Mr. Del Balzo and IBM testify, and there have been briefings. There is kind of an attitude. I am just saying that, speaking generally, if you were to hear of this same type of attitude and people could not get information, would you be inclined to—

Mr. HINSON. Of course. I mean, I will try to make that happen in a positive fashion, but it has to happen in any case. So if it does not happen in a positive fashion, it will have to happen another way.

AAS REVIEWS

Mr. WOLF. I have general questions and then specific ones on the AAS.

Would you comment on that just for the record? Tell us where it is now; what you are doing and what the CNA is doing? I think Ms. Daschle has done a good job. Just lead us and tell us what you have been doing, where we are today and how will this thing shake down? Any bombshells or anything of the like?

Mr. HINSON. The AAS programming was one of the first issues the Secretary put on my desk after he invited me to join him in this Administration. I want to tell you that it has had a lot of my attention that I would prefer to have spent someplace else, but nevertheless, it is a problem we have to resolve. I am not an expert on AAS, but I think I grasp the broader context of the program.

It is a very ambitious technical program, and it has been explained to me as being from a software perspective perhaps more complicated than many of the ballistic submarine missile software programs. In fact, one person who is a contractor associate, told me it is the most complicated software program he has ever seen or knows about. I don't know if that is true or not, but that is one opinion.

I think at the outset, back in 1987–1988 when this program was launched, there was probably clearly, in hindsight now, not an appreciation of the difficulty of the technology involved or the scope of what was about to be undertaken. In any case, through a number of iterations and changes, I inherited a program that was to be in Seattle in October of 1996, at least the ISSS part of the AAS program. It appeared to me that there were questions about that, questions to the point where the Secretary was uneasy and I became uneasy. So I, as you know, tasked my Deputy Administrator, Linda Daschle, and my Chief Counsel, Mark Gerchick, to head a special committee to dig into the AAS program and give me an assessment of the risks for cost and schedule. In other words, how much will it really cost if we take it to its completion, and how likely are we to meet the schedule.

They did that, and assigned a range of 20 to 80 percent probability, depending upon your risk assessment in terms of cost and schedule. We got ranges, as you know, that, the total program will cost somewhere between \$6.3 and \$7.3 billion. I don't remember the exact numbers, and will be delayed from 9 to 30 months later than we expected. That is fairly broad range of costs and schedule.

I also simultaneously felt that we needed an independent third-party look by someone who was untainted and had been uninvolved in this program in any way. I wanted the review by an organization who had experience to some degree, hopefully a lot, who would have the ability to draw people in who had a very good, high-level experience in major programs.

I chose the Center for Naval Analysis, or CNA. I must tell you, I am very pleased with what they have done. The people they put on that program and brought into help were all very highly experienced in certain disciplines of program management. This is third-party overview. I tasked them in the job description to tell me about their view of the cost; their view of the technology; where it is; what are the alternatives that might be available to us; how have we managed the program; what do we do different to manage it in the future; how have our oversight contractors performed, those that are supposed to be looking at it for us; and, a host of other questions that you would expect. I expect to receive their report within the next two weeks in its final form.

Now, those are two different reports, but we also needed a third leg, so to speak. We really needed to go back to when we looked at this program in 1987 and 1988, when we set certain requirements. Air traffic control said we want this system to do certain things, and this is the way we will manage traffic from enroute, in terminals and in towers. So this whole system fits together. We put together an internal revalidation requirements team and tasked them to go back and look at all those initial requirements and tell me and the senior management of the FAA if those requirements are still valid today. That is another way of saying, is what we started with in 1987 and 1988 what we would do today. Are those still the right objectives, and are there technologies that may be obsolete in some of those objectives? Are there other technologies that would allow us to do it a different way?

That report is in its final stage as well. As I said in my earlier testimony, I have the initial cost and schedule risk report. I expect within the next two weeks the completion of these other two reports.

I replaced the program manager and brought in a gentleman named Robert Valone, who has been at NOAA for the last two-and-a-half to three years working on \$4 billion worth of programs there that were troubled. He has successfully turned those programs around. Mr. Valone and his deputy joined us two weeks ago. He is now the full-time program manager for AAS and is acting as the coordinating point with all of the data we are collecting to help us make the right decisions for the program.

He has assembled a task group for program execution in the large program area under a special program office that is similar to that used at DOD or in the military, a tiger team, which is comprised of people who represent all the disciplines that go with a program of this magnitude: contracts, lawyers, engineers, and so forth. Everybody involved in the various disciplines in the program are on a special team and they are sited together, spending full time on this program to pull all of these reports together and make recommendations to me and senior management about where we go from here.

AAS REVIEWS—COMPLETION DATES

Mr. WOLF. When will that be? When will we get that?

Mr. HINSON. I have tasked him to give me the first input toward the end of May, early June. That will be sort of the initial strategic direction we are going to take to the program. But it will evolve over the next several weeks or months after that. It is too large a program to be able to come to you or anybody else, for that matter, and say on May the 30th, I have it all in a bag, because we cannot do that. We will have our initial direction and the initial strategy pretty well decided upon by the end of May.

Mr. WOLF. Maybe it would be helpful at that time to have this gentleman and the CNA team to come up together. Again, not with an official hearing but—

Mr. HINSON. Yes, sir. I should make one other point also, Mr. Wolf. I think it is important to note—I mean, I don't know any other way to go about taking a program like this apart and looking at it. I am comfortable with this strategy.

Mr. WOLF. Sounds like you have done a thorough job.

Mr. HINSON. I want to make this point, that I think it is important for me, for the Secretary, and certainly for the agency, that while the total program costs could approach \$6.5 to \$7.5 billion, or somewhere in that neighborhood, we have spent only \$1.2 billion on the IBM or Loral part of this program to date. That is a lot of money, but it is not \$7 billion. The purpose of what I am doing and why we are working so hard to make sure we do not spend \$7 billion, if possible, is to put the program back into some cost-control context. I will have to see if this can be done.

The alternatives are to cancel the program or to take it to its original completion profile and spend the money. We might argue we have made the investment, and all things being equal, it is still the best buy. I think it will be somewhere in-between, but those are clearly the extreme alternatives.

HIGH DENSITY RULE—BUSINESS EXPRESS REQUEST

Mr. WOLF. Well, I thank you very much and we look forward to keeping informed. And maybe at that time, the CNA team and the gentleman can come up to brief the Committee.

I do not think the system or the program can really stand another bombshell. You either raise the confidence level or you reduce it to where there is none, and it has gotten to where there is none. And I think you are bringing it back, which is important.

On the high-density rule question, I want to get your statement on the record. We had asked it before with regard to changing the slot restrictions at National Airport, and I would hope that you would not. That is a request. And although National is no longer in my district, that was a delicate compromise that was worked out over the years.

It is my understanding that if you were to do that at National Airport it would take legislation; is that correct?

Mr. HINSON. I think it would, sir. Yes, sir.

Mr. WOLF. The other question, Business Express, a Delta Airline subsidiary has pressured DOT to use commuter slots at high-den-

sity airports, including National for large jets. I have been told this decision is imminent.

Mr. HINSON. I am not familiar with that specific request. We have numerous requests to modify the existing high-density rule at the four airports. I would be happy to provide you that.

Mr. WOLF. Good. I would appreciate that.

Also, I had offered an amendment on the floor, which was not successful, to strike the provision with regard to collective bargaining at National and Dulles Airports. Many area residents, frankly, cannot understand why Congress intervenes here and would presume to dictate labor relations for two airports that, frankly, are not under Federal control.

Two questions: Has DOT formulated any views concerning this legislative provision?

Mr. HINSON. I don't know the answer to that, but I will get that for you.

[The information follows:]

On November 10, 1992, Business Express filed a petition for rulemaking to amend the High Density Rule (HDR) to authorize air carriers to use commuter slots at LaGuardia and Washington National Airports to operate aircraft with a maximum passenger seating capacity of up to 80 passengers. There is a similar rule in effect at Chicago O'Hare International Airport that permits an air carrier to operate aircraft having an actual seating configuration of 110 or fewer passengers and a maximum certificated takeoff weight of less than 126,000 pounds in up to 50 percent of the carrier's commuter slot holdings.

A comprehensive review of the HDR is now being conducted by DOT and FAA. Any changes to the HDR will be subject to the separate public rulemaking process required by the Administrative Procedure Act. In the case of Washington National Airport, since the number of air carrier operations is limited by statute, any change to the HDR also would require a statutory change. The study will be completed by November 1994.

In view of the on-going study, we do not believe that it would be appropriate to continue with rulemaking on such a complex issue. Business Express' petition would significantly alter the number of air carrier operations at Washington National and should be held pending the completion of the study.

DENVER AIRPORT—CONTINENTAL SERVICE

Mr. WOLF. Okay.

I guess the next question would fit in then. Well, let me ask you one other.

The Denver Airport, do you think there is a potential that they are going to come and ask for a bailout, and would you be sympathetic to that?

Mr. HINSON. Well, I guess I would answer that in this way. I do not know. I am not that intimate with the finances of the Denver Airport. But let me just offer an observation from the marketplace. You indicated earlier that Continental was taking down some of their service, which they have announced, about 30 or 33 percent of their airline service.

Mr. WOLF. I did not know what the number was.

Mr. HINSON. It was about that, initially. Maybe more now. If there is a vacuum there for airline service, it will be filled very quickly. One of the interesting aspects of the airline industry is a need does not go unserved long. I think the Denver community can be assured that if airline service is reduced by one carrier there and the demand exists, it will be supplied very quickly by someone else.

Mr. WOLF. Well, it could be at a different airport, though.

Mr. HINSON. Of course it could. But I am specific now to Denver. If the market is in Denver for Denver Airport, the vacuum would be filled very quickly.

DENVER AIRPORT—COSTS

Mr. WOLF. With regard to Denver and the cost increases, you sort of have an AAS program here. Denver has gone from \$2 to \$3.2 billion, and your cost per passenger, I guess, is up to about \$20, \$25, and the marketplace does work and people are paying for those tickets.

Again, I do not want to be in a position to try to do anything to hurt Denver. I think the airport is there. There is not much—

Mr. HINSON. Yes, sir.

DENVER AIRPORT—SIXTH RUNWAY

Mr. WOLF. What about the sixth runway?

Mr. HINSON. The sixth runway referred to is a north-south runway; that is an exceptional runway because it is 17,000 feet in length. The reason you need a runway of that length at Denver is, since it is at 5,000 feet, on a summer day when the density altitude—that is temperature and altitude—is very high, you need that runway length for a fully loaded 747 to go non-stop to Europe or Asia. That is the criteria for both cargo and passenger.

Mr. WOLF. Mr. Mead said there had not been any Federal funds for that.

Mr. HINSON. None yet, but it would be eligible at some point just as any other runway is eligible.

FAA MANAGEMENT MEETING IN DENVER

Mr. WOLF. I think you are going to have to be careful, and the next question will kind of sensitize you to that. I think you are going to have to be careful with regard to the fact that the Secretary is from Denver.

That does not mean that Denver should be discriminated against either. Let me just say that for the record. But I also think there is a sense that FAA officials will know that the Secretary is from Denver and sometimes may be more anxious to treat Denver better than it would be treated. I think Denver has to be treated fairly, in the right way, and the decision has to be made whether the Secretary were from Duluth or from Arlington, Virginia, or Arlington, Texas.

I saw the report that last year the FAA convened a management meeting in Denver which was attended by 25 FAA personnel, 10 from the region, 15 from Washington, and it was at the same time as the dedication of the airport. It may have been appropriate; maybe not. But, again, it just does not send the right message.

And I am not going to stick you today, to ask you to comment and give me every reason why every person was there and every person that went out there, but I am watching and I am interested. Not, again, to hurt it, and you can comment, but to make sure. Because I know there can be some pressure. And let me say for the record I don't believe he would apply pressure, but that there can

be such an anxiousness to approve it in things like this that you have to be very careful.

You know there was an IG report whereby a former Administrator who had your job took an FAA airplane and flew out there to apply for the job. Another person who was an FAA official applied for the job and then recused himself after six months. There are some things there that require sensitivity.

Mr. HINSON. Yes, sir, I appreciate those comments. Let me say two things. First, I can assure you from personal experience the Secretary is extremely sensitive to his former relationship.

Mr. WOLF. I agree with that.

Mr. HINSON. And, in fact, made it clear to me, therefore, I have to be very careful as well. We are doing that.

With respect to that meeting, I asked the same question you did. That meeting was one of four that are scheduled annually for our regional managers. They are moved around to various cities. None of those people participated in any way in the Denver Airport opening process, and only four made one appearance at one event for the Denver Airport. I really believe, Congressman, it was coincidental.

Mr. WOLF. I am not saying it was not, I just think it is the type of thing that where appearance is important. And, again, let me state, I do not think Denver should be treated unfairly, but I do not think they should be treated overly fairly.

Because of the time, I will just wait until we come back from the vote.

Thank you.

Thank you, Mr. Chairman.

DENVER AIRPORT—DELAYED OPENING DATE

Mr. CARR. Thank you, Mr. Wolf.

We have a vote now and we will have to leave until 1:30.

Before leaving, I merely wanted to note, on the heels of Mr. Wolf's questioning about Denver Airport, this morning's Aviation Daily's top story was that sources at United and Continental at Denver indicated that the airport opening may have to be put off a fourth time. Do you have any information?

Of course, obviously, they have to consult with you about what time they are going to put the open sign out on the control tower and a few other things. So have you received any information suggesting that there may be a fourth delay?

Mr. HINSON. The answer to that question is no. But I will take the opportunity to tell you that we were ready with the original date, I am pleased to say. The FAA was in place and ready to go with all of our equipment. In fact, we had the charts out and had to withdraw and cancel them, all the navigation charts and frequency changes. My understanding is it has to do with the very complicated automated baggage system. They are having difficulty making it work right. I was not aware of that until you read it to me.

Mr. CARR. Okay.

Well, we will take a recess until 1:30.

Thank you.

[Recess.]

PAY DEMONSTRATION PROGRAM

Mr. CARR. We will resume. We had a series of suspension votes, and that is what caused us to be 15 minutes past our target time.

I would like to deal with a few things that are of importance to a large number of people in the country, but are not probably as wide ranging as the AAS issue, and I would like to try to skip through some of those. I don't know whether the Members of the Subcommittee are going to be coming in and if I keep to these shorter topics then they have an opportunity to ask some questions when they get here.

I would like to direct your attention now to the question of the pay demonstration program. As you know, the Administration requested last year that it be eliminated and this Committee felt that its premature elimination would not be fair to those who had relied that the program would go to its termination, which is in June of this year. Nonetheless, hope springs eternal in the hearts of those who have and do not want to give up, and so there is now a mounting pressure once again to extend the pay demonstration project, in spite of the warnings of this subcommittee in particular.

We have also had some communications from at least a couple of the airlines at Chicago indicating that they are anxious about the effect that withdrawal of the pay demonstration project might have at that particular location. I just want to reiterate what our committee report said last year, and I am quoting from our report. It says, "The committee's restoration is made to alleviate the impact on FAA's employees by providing longer notice that the program will not be continued. However, those employees should begin accepting the fact now that the Committee does not intend to continue the program in fiscal year 1994."

Well, it has been a year since we have written that, and I guess I would like to ask you just a threshold question, whether the FAA has any new evidence to indicate that the program is worth its cost?

Mr. HINSON. Well, Mr. Chairman, the pay demonstration project, if I could just review some of the genesis since its inception, was derived from the fact that the air carrier community felt that the staffing shortages that were apparent to them in the major air traffic control centers in the United States, specifically New York and Chicago, could be alleviated to some degree if the FAA could offer a financial incentive that would attract more controllers to at least those two, there are others, busy centers. I was part of the aviation community that was then agitating for this, so I understand how it started.

In the succeeding five years or so, a number of things have changed, however. The FAA has matured its controller work force in terms of numbers. It has also matured its work force in terms of controller qualification. There are more full performance controllers today than there were five or six years ago. In addition, we have instituted locality pay, which recognizes the different cost of living that may be imposed upon our employees in different communities. So the circumstances today are quite different than they were when we incepted the pay demonstration program.

I understand that our employees would very much like to have it continue. I am sensitive to that. In fact, all of management at the FAA is sensitive to that. However, we are in a period of declining resources. In view of the fact that we now have locality pay, which offsets to some degree the pay demonstration, we do not believe it is any longer necessary and we have not included it in our funding request.

Mr. CARR. Does Chicago have locality pay?

Mr. HINSON. Yes, sir.

Mr. CARR. If we were to continue this program in 1995, it would apparently be that we would have to further reduce the controller work force.

Mr. HINSON. Well, the aggregate cost is about \$20 million on an annualized basis. I would not say that we would have a direct correlation between reducing the controller work force and the pay demonstration program, but we would have to find the money someplace. I mean, obviously, we cannot reduce our controller work force below what we feel is necessary to provide safe service. So it would be likely we would have to find that money in other places.

Mr. CARR. Where would you find it?

Mr. HINSON. I would have to turn to my Chief Financial Officer and ask him to find it for me. I have no doubt it would come from a whole host of sources.

Mr. CARR. Well, we look at the budget as being very tight, and I am going to be sitting at that table in a few weeks doing my Chairman's markup and I would not know where to get it, quite frankly.

I think we are going to be very, very tight giving you the money that you are requesting, as we look at the overall complexion of transportation, from Coast Guard to transit to FAA to highways and everything else.

Mr. HINSON. One more indication, Mr. Chairman, that times are a little bit different. We had an opening for six or seven controllers in Chicago, and these openings that were bid for the controller work force did not have attached to them the pay demonstration. We had 65 bids for those six or seven openings, indicating that there is substantial interest in controllers moving to the Chicago area without demonstration pay.

Mr. CARR. Could it be said that they were bidding in the hopes that it would be continued?

Mr. HINSON. No, it was not part of the bid.

Mr. CARR. I understand.

Mr. HINSON. Of course you could—

Mr. CARR. In the grapevine, they know what is going on.

Mr. HINSON. Yes, of course.

Mr. CARR. I suppose some could say, well, I will bid for Chicago in the hopes that between now and then the program does not die and I get a windfall.

Mr. HINSON. That is possible, yes, sir.

SCHEDULE FOR CONGRESSIONAL ACTION

Mr. CARR. We have some questions on the operations budget I will ask for the record. And I might say, we are getting close to the end of our hearings now and we are going to be under a time com-

pression problem that is a little different than the time compression problem we had last year. Last year's time compression problem was because the administration was so late in getting numbers to us. They did not arrive until about two-and-a-half months after they usually arrive. This year's time compression problem is really caused by House scheduling on the other end.

Normally, the House considers appropriations legislation in July and that is now going to probably be moved up into June, because the end of June and July is going to be taken up with health care. So I know that it stresses the situation, but we will save time in the open hearings today and tomorrow if we can ask a large number of questions for the record, but I would like to get your cooperation in turning those around very, very quickly, quicker than you normally do—and you have always given us great cooperation—but if you could bump it up in terms of priority so that we can complete our record and get on with our business, we would really appreciate it.

So in that vein, I have a number of questions on staffing reductions and operations budgets. They are pretty much of a technical nature and we will ask those for the record. We have a couple of additional ones on pay demonstration, again of a technical nature. We have some on tower streamlining that we will ask.

AIR TRAFFIC CORPORATION

I would like to ask you, though, some questions, because it is an area that is new and one where I believe people who are either in the room or going to be reading what people in the room will write, I would like to talk a little bit about the proposal for the corporation.

You have met with some stiff resistance on the part of some of my colleagues here, and while it is hard to endorse something I have not seen, I at least have retained an open mind about what is being proposed. I think that we ought to examine alternatives and be fair about evaluating them, not be closed minded and prejudicial, as I think some of my colleagues, unfortunately, have been.

But I would like to ask you a couple of questions about it so that perhaps we can begin to get the administration's thinking on the details. You have not yet submitted the legislative proposal, as I understand it, but apparently, I am told, the draft was submitted to the Secretary yesterday. Is that the case? Can you confirm that?

Mr. HINSON. I cannot answer that one way or the other. I believe the draft will certainly be to the Secretary in the very near or immediate future, within the next—

Mr. CARR. We understand that was the original schedule. Whether it has been delayed or not, we do not know.

Mr. HINSON. It is very close, Mr. Chairman.

Mr. CARR. Well, has the drafting gotten to a point where you can give us a preview of what we might expect?

Mr. HINSON. Yes, sir, I can.

Mr. CARR. In some details, more than you have outlined in the past?

Mr. HINSON. Well, I can share with you what I know at this point in terms of the broad concepts. I am not sure it will be the detail you would like, but let me try.

Mr. CARR. Well, again, in the interest of time I think we know the broad concepts, because you have testified about them, and the Secretary has testified about them. I don't want to be discourteous or anything, but in the interest of time, are there some elements you can give us today that are in addition to those we probably already know?

Mr. HINSON. I think I can tell you that conceptually it will be a government corporation. That is, I think, one of the decisions that is anticipated. It will be as close to operating like a private sector corporation as possible and still remain a government corporation. It will be funded by user fees from the air carrier and fuel tax arenas. It will be comprised of between 38,000 and 40,000 people from the FAA who presently comprise the air traffic control services organizations. I think those numbers are fairly close. The balance of 8,000 to 10,000 FAA employees will remain in the FAA under the DOT.

The Administrator will stay with the FAA and the DOT. The governing body for the air traffic control corporation will work with the President to choose a chief executive of the Air Traffic Control Corporation and it will have a governing body that functions similar to a board of directors, if in fact it is not a board of directors. That has not been finalized yet.

ATC CORPORATION—STRUCTURE AND RATES

Mr. CARR. What kind of a structure is contemplated, if you know and can tell us, about the rate making? Is the corporation going to set its own rates or are the rates going to be set by yet a third body or a body independent of the corporation, more like the Postal Rate Commission?

Mr. HINSON. That has not been determined yet, that I am aware. We have investigated seven or eight other air traffic control corporations that are in place around the world. Most of those have the rates set by the governing body but subject to review by the senior government official, in this case the Secretary, for reasonableness just as we do now for airports.

ATC CORPORATION—BUDGET ENFORCEMENT ACT

Mr. CARR. Will waiving the Budget Enforcement Act (BEA) be involved in this?

Mr. HINSON. I don't know enough about that technical part to tell you, Mr. Chairman. What we have been trying to do in formulating the outline of this corporate structure is to do it in the way we believe is most effective. We will then give it to the lawyers and let them decide how we deal with it with respect to things like the BEA and a whole host of other issues.

ATC CORPORATION—ASSETS AND LIABILITY

Mr. CARR. Will the corporation own the assets or will it be more in the nature of a management operations contract?

Mr. HINSON. The initial financial projections, since it is staying in the government, indicate that the corporation owns the assets.

Mr. CARR. The corporation owns the assets?

Mr. HINSON. Yes.

Mr. CARR. What does that do in terms of the liability situation? Is this corporation then going to be also governed by the existing Federal tort claims provisions or is the corporation going to have to insure to a higher degree of risk than the Federal Government would? Do we know that?

Mr. HINSON. No, sir, I do not know that yet. Those are some of the questions that are being resolved by the legal staff attendant to the committee right now.

You could hypothesize that the further away from the government it gets, even though it is a government corporation, you would want to have it insure itself, provide officers and directors liability, for instance, and ensure against catastrophic circumstances in the private sector by insurance, in other words. Or, alternatively, it could stay within the government and have the government indemnify all the appropriate personnel and organizations. That is part of what is being discussed.

ATC CORPORATION—CERTIFICATION AND FLIGHT INSPECTION

Mr. CARR. Where would the dividing line be in terms of navigation aids certification; would that be a government, FAA, function or would that be an ATC function?

Mr. HINSON. All of the air traffic services, including procurement, facilities and equipment, maintenance and provisions, all of the air traffic control, controllers and services, would be in the corporate structure.

Mr. CARR. FIFO, in other words, would be in the corporate structure?

Mr. HINSON. Yes, sir, and the safety oversight would be provided to the Air Traffic Control Corporation in a manner similar to the safety oversight we provide today for other corporations and entities that function in aerospace and aviation. It would be just exactly the way we do it today with, say, United Airlines or with Boeing or with Garrett or a manufacturer of that type.

Mr. CARR. In other words, every once in a while an FAA person would fly with the FIFO crew as they, the FIFO, now corporation crew, certify and recertify, say, ILS's across the country.

Mr. HINSON. Flight inspection could be done a number of ways. FAA would have the oversight responsibility that whoever is providing flight inspection, in this case it would reside in the Air Traffic Control Corporation, is meeting the standards set by the FAA.

In a similar fashion, the FAA would send people to watch controllers work, give them proficiency checks, make sure their drug testing is complete, et cetera, et cetera, et cetera. All of the things we do now we would simply do now similarly for the Air Traffic Control Corporation.

The sovereignty issue, who owns the air space, that remains with the FAA. We would still own the air space and we would allow the Air Traffic Control Corporation to operate within it. We need, however, to maintain the sovereignty of the air space within the FAA.

Mr. CARR. Well, I have a number of questions on this topic that I will ask for the record, but before turning to another topic, I will give my colleagues an opportunity to ask some questions. Mr. Price.

AIP SENATE REAUTHORIZATION BILL

Mr. PRICE. Thank you, Mr. Chairman.

I would like to begin by asking you to comment on the effect of not having the AIP authorization in place. That program has been shut down since the beginning of this Fiscal Year because of a lack of an authorization. This morning the Senate passed a temporary extension, a 60-day bill that would allow FAA to resume funding AIP grants 60 days; would require DOT to initiate a rulemaking on reasonableness of rates and charges and would make it explicit that the Department during the 60-day period would have the discretion to disallow a disputed fee increase under certain circumstances.

I wonder if you could assess the Senate bill. Are you working to pass a four-year authorization. We have already done our part on the House side.

Mr. HINSON. Yes, sir. I can comment on the fact that we have some money now to work with, or apparently will have some money now to work with in the 60-day period. I will set aside any comments on the other issue, because they are the Secretary's purview in terms of rates and charges and issues like that.

Let me comment that our concern is that the longer we go without an AIP bill and the ability to put money into the field, we begin to lose the building season in the northern part of the United States, and especially in Alaska. In fact, I talked to Senator Stevens yesterday and he is concerned that some of the aviation facilities in his State only receive barge traffic once a year and it is going to leave the lower 48 in the not too distant future. He is concerned we will not be able to get the aviation-related equipment that comes from AIP aboard so that it can make these deliveries. So it is from that perspective, and there are others in the northern States, that due to a shorter building season, airport development may be adversely impacted. Beyond that, though, we can go ahead with the program. We are ready and we can dispense all of the money that has been authorized in this 60-day period. I am confident we can get most, if not all of that, into the field.

Mr. PRICE. By the end of the 60 days, we hope to have the full authorization in place?

Mr. HINSON. Yes, sir, I hope so.

IMPACT OF NO AIP AUTHORIZATION

Mr. PRICE. What kind of information do you have on the impact of this delay on airports around the country? Raleigh-Durham Airport has underway a project that involves about \$20 million in AIP funds to develop and build roadways and bridges. It is a major renovation of that airport facility and the roadways leading into it. The AIP funds, of course, are a major revenue source that allows the airport authority to make monthly payments under contract.

So the cash flow now has been cut short and will be cut short, potentially could be cut short as much as \$2.5 million within a year if we do not get the situation rectified.

Is this a typical situation? Would you say that that is the sort of crunch that airports around the country are facing? What other

revenue sources are they turning to avoid shutting these programs down?

Mr. HINSON. Well, at some risk, because I am not real intimate with all of the funding mechanisms, let me make a couple of comments. First of all, AIP funds are really a small part of the annual funding that goes on in the airport system within the United States. In fact, a very small part. The majority, vast majority, of all funding for airports in the United States is derived locally and—

Mr. PRICE. I know that is not true across-the-board. For example, on this specific roadway development project I referred to, we are talking about a total cost of \$39 million, of which \$20 million is AIP funds. The rest comes from the airport authority and the State, the Department of Transportation.

Mr. HINSON. I think that there will be other airports in the United States similar to Raleigh. Although, I cannot enumerate them for you specifically. I just hope that we get the authority within the next day or so to go ahead so we can rectify that situation.

PRECISION RUNWAY MONITORS

Mr. PRICE. One of the success stories we have at that airport, as you well know, is pioneering the precision runway monitor radar system, which allows us to land planes at a steady rate in bad weather on those parallel runways. Could you update us on your deployment plans for that radar system, the number of airports you would hope to equip in this country with that kind of system and what the deployment schedule will be? A plan of this design, of the sort that was tested and approved out at Raleigh-Durham?

Mr. HINSON. The prototype PRM is at Raleigh-Durham, as you have noted. We have five additional systems authorized for acquisition. We have announced the selection of not only Raleigh-Durham, it will get a new system, and the system there will go up to our Technical Center in Atlantic City to be used in further development.

In addition to that, Minneapolis and Atlanta have been selected for the installation of the PRM. We have also selected two additional cities, which we have named for the committee but we have not named in public yet. I would prefer not to do that until the cities are notified. But there are five cities site-selected now, including Raleigh, Minneapolis, and Atlanta from the first five.

Mr. PRICE. This prototype system is now the design of choice for cities similarly situated that need this sort of equipment?

Mr. HINSON. I believe so, sir, yes.

AIR CARGO INDUSTRIAL COMPLEX FACILITIES

Mr. PRICE. The FAA, working with appropriations from this Subcommittee, has had under way studies on the air cargo industrial complex facility in North Carolina, which is relevant not just to that facility to be located near Kinston, North Carolina, but to similar facilities that might be constructed elsewhere. Been a lot of discussion about this as a cutting-edge kind of facility; integrating industrial operations and air cargo operations in a way that could have a significant impact on our country's competitive situation.

We are interested in moving forward on the Global Transpark in North Carolina. I am also interested, though, in the more general conclusions you might draw from the look you have taken at this facility and its potential. Would assess the potential of this kind of air cargo, industrial complex as a model for promoting economic development and promoting intermodal transportation strategies. Is there some way the benefits of this study, the work you have done on this particular project, might be extrapolated to the country as a whole and become part of an overall economic development strategy as you look at the kind of facilities you might want to build and support in the future.

Mr. HINSON. Well, the short answer is, yes, sir. It immediately becomes more complicated because various regions of the country and communities have had different views historically about the way they want to develop major airports for their regions. I think the plan that you are discussing, the concept that you have, has been replicated in some fashion, not exactly like this, but in similar fashions in other parts of the United States and certainly in the world. Major regional airports have been developed to attract cargo carriers and other large bulk movers of air transport.

Mr. PRICE. The unique feature is integrating the air cargo capacity with the industrial plants on the periphery of the facility.

Mr. HINSON. That is exactly right. The recent advent of air cargo, which I am sure you know, is driven principally by the concepts of just-in-time inventory control, worldwide. Nobody wants to have any inventory on the shelf. So everybody wants to ship as quickly as possible in order to have their inventory there just the moment they need it. Air transport, of course, is the method of choice for moving the cargo that is not so large or heavy that it could not be moved in that fashion. That is happening in many, many parts of the world. I was going to say something like the race is about to start, but I won't say that.

This concept has great potential for communities like yours and others where they have relatively tight concentrations of industrial activity within a reasonable distance. It is one that the FAA—part of our charge, of course, is to see we develop more airports and more aviation infrastructure. It is a high interest of ours, and one of mine specifically. So I would say it has great application and will be of great interest to not only the FAA and the Department of Transportation but to everybody else that is paying attention to how people move goods.

Mr. PRICE. That may have implications for how we view the overall funding picture, whether there may be a justification for a specific focus on this kind of facility, chosen on a competitive basis by region.

Mr. HINSON. We have the National Plan of Integrated Airport Systems. NPIAS is our acronym for that. Some of the oversight groups that look at the FAA have made comments about how important it is for the FAA to begin to look at the airport conceptually with an overall national strategy, as a national asset. Historically, it has been viewed as sort of a regional and narrowly focused development issue and programs.

Now, I think it is appropriate to begin to ask the questions about national priorities. As we become more global, in terms of our com-

petitive interests, we need to make sure that we are competitively advantaged by an aviation infrastructure that lends itself to our private sector being very, very competitive internationally. I think airports or large cargo civil industrial airparks as you described, have a pretty bright future. I would expect we would see more of this kind of thinking as we begin to realize that it is truly becoming one world.

RELATIONSHIP OF RELIEVER AIRPORTS AND CENTRAL AIRPORT FACILITIES

Mr. PRICE. The decisions about setting up the facilities and funding them should be more than a matter of local initiative. It requires a good deal of local and State initiative and investment to make it happen. From the FAA's point of view, there would be a national strategy we would need to develop.

Let me finally ask about the GAO report you heard before you came on this morning, on another matter of strategy of your funding decisions, having to do with the relation of reliever airports and central airport facilities.

You remember the GAO was rather critical of the FAA's past performance in making this decision, suggesting there was not a clear way of measuring either the need for or the performance of reliever airports, yet, of course, there are many, many pressures to fund those facilities, for understandable reasons. Communities that think their economic future requires this kind of general aviation capacity.

Yet, again from the FAA's point of view, this is not just a matter of local development, it is a matter of an overall strategy. How would you respond to that criticism? Is there anything we should know about that? What you are doing to improve your analysis of these needs?

Mr. HINSON. I think their criticism is justified to some degree. We certainly should be able to respond to a question like that and say, well, we do have some evidence that reliever airports are working or they are marginally working or not working, as the case may be.

The original concept of reliever airports was to aid in the capacity of the major air carrier airports, and to unload the general aviation traffic so that we could increase the capacity in terms of passenger airplanes at the 25 or so, maybe 30, large commercial airports in the United States. It has been a success. There is absolutely no doubt about that. I know intuitively from my own experience that reliever airports have been very successful in attracting very large numbers of general aviation aircraft which would otherwise impact traffic into major air carrier airports.

Approach control and radar—and our FAA staff see a target. It might have one passenger or 400 passengers. It is a target. While they know the difference as far as a space in the air traffic line, it is the same with, obviously, some maneuvering that goes on between big and little airplanes.

Reliever airports, as a concept, is a very valid concept. I think that the GAO is right. We should be able to tell you to what degree it has been effective and whether we should continue it and, if so, how much should we spend on it. I will ask that that be done.

Mr. PRICE. Thank you. Thank you, Mr. Chairman.
Mr. CARR. Mr. Wolf.

FAA MEETINGS WITH GAO

Mr. WOLF. Thank you, Mr. Chairman.

Couple of other questions. Do you personally sit down at the FAA with the GAO people?

Mr. HINSON. I have, yes, sir. I have not done it often yet, but I have, yes, sir.

Mr. WOLF. It is probably not a bad idea. They seem to have a pretty good grasp of issues; although, they may not be right on every issue, but they can speak from a different point of view. It might not be a bad idea.

Mr. HINSON. Yes, sir.

FRONT ROYAL AIRPLANE ACCIDENT

Mr. WOLF. Would you want to make a couple of comments with regard to the FAA crash of the airplane that took place in my congressional district? It took off from the Winchester Airport and crashed at Front Royal, both areas in my district, and the safety report inferred maybe the FAA was not following—

Mr. HINSON. Yes, sir. I happened to be in my office the evening of that accident and so I went down to the Operations Center to watch how we handled emergencies of that nature. The next morning I drove up there personally and hiked up to the wreckage. I have had experiences of being on three major air carrier accident investigation teams, so I am a little bit experienced about that kind of thing. I walked all through the accident site the next morning talking to the NTSB accident investigator in charge and others and then flew up to Atlantic City to talk to the people up there and families and so forth.

But the fallout of all of that is that I think that the FAA was not as sharp as they should have been in managing their flight operations activities. Once I understood the way that we approached this, historically it has been done in that manner, I asked a question which I think you would ask. I would assume: Why aren't our standards as high as everybody else, as if in fact they are not.

I think probably we certainly intended them to be as high as everybody else's. We did not, in my opinion, have the organizational structure and regulations in place to see that that happened. So the first thing I did was instruct the senior flight operations personnel and management personnel in the agency to review the overall management of the flight operations activities in not only in the flight inspection area but in all other areas where we operate aircraft. I also asked the question, is it reasonable for us to set the same training and regulatory environment that we ask of air carriers. That is what we are doing.

Mr. WOLF. You are doing that now?

Mr. HINSON. Yes, sir. That was done before—it was under way several months before the accident report was issued.

HIGH DENSITY SLOT RULE—BUSINESS EXPRESS REQUEST

Mr. WOLF. Good.

I have asked you about the commuter slot question. I just wanted to go back to that a little bit. The question I had asked you is regarding Business Express, Delta Airlines' subsidiary, petitioning DOT to use commuter slots for large jets in high density airports, including National. We had been told it was ready to be announced.

I don't know if you talked to anybody at lunch time or not, but the use of commuter slots was part of the agreement, too, at National Airport. I would hope you will not change that there either.

Mr. HINSON. I did not talk to anybody at lunch about it, I apologize. I could have.

Mr. WOLF. No, that is not important. I just wanted to come back to it because the bells had rung and we were running. And you would not be expected to know, although people that work for you would, the controversy that developed with regard to that and the commuter slots. It was a very delicately crafted compromise, which, frankly, without the slot provisions, the whole airport transfer legislation would never have happened. So if as you are looking at the other issue, you should consider that.

Mr. HINSON. Yes, sir.

AIRPORT NOISE

Mr. WOLF. Airport noise. In an audit of the noncompatible development and airport noise compatibility program, the IG found noncompatible development was occurring around 6 of 10 airports. The IG further estimated this would wind up costing the taxpayer about \$75.6 million in Federal grant funds to mitigate the effects of airport noise.

Having lived through the National experience, I am a little concerned over what is taking place out at Dulles. I want to make sure we do not "close the donut" there and have the same problem. While the IG did not take issue with the way the FAA draws the noise contours around the airport, the IG did say the FAA's response to potential noncompatible development has been mixed. It was noted that while two FAA regions have been aggressive at informing sponsors that Federal noise grant funds are not being provided for noise mitigation remedies on new noncompatible development, FAA headquarters and the remaining regions have been reluctant to take an aggressive stand.

Mr. HINSON. I am not intimately familiar with that either, Congressman, but I think probably what I should say, therefore, is that I will get you the information on that right away.

Mr. WOLF. Fine. Because Dulles is an economic engine for this region, for my congressional district, but also the entire region, particularly with the international flights. In 1981, before we transferred the airports over, it had 2.1 million passengers and now it is up to about 12 million and growing. And if you begin to enclose the airport with housing later you have that noise; then you have noise mitigation costs and problems in the area. So if you can keep them from developing close in, then it saves future headaches.

Mr. HINSON. Yes, sir, I will provide you an answer to that.

[The information follows:]

While the FAA believes that the IG has overestimated the potential amount of Federal grant funds that would be spent to remove new noncompatible development around airports, the FAA is cognizant of the fact that local jurisdictions are in many cases still permitting residential and other noise sensitive development in noise-impacted areas near airports.

The control of land uses for aviation noise purposes is a complex and controversial issue. Most major airports in metropolitan areas that have serious noise problems are surrounded by multiple, independent, local governmental jurisdictions that individually control land uses within noise-impacted areas. There are a variety of reasons why local jurisdictions continue to permit noncompatible development, despite the efforts of the airports themselves. Local jurisdictions may not recognize the noise problem; they may oppose the airport and not want to make land use concessions to it; they may simply acquiesce to local development pressure and its economic benefit (including expanding the tax base of the community); or they may have other higher priorities (such as increasing the stock of housing on developable land).

The FAA is pleased to report that the governments of Fairfax and Loudoun Counties around Dulles International Airport continue to aggressively oppose new noncompatible development around Dulles. These counties fully recognize the economic and transportation importance of Dulles and are pursuing policies to prevent the types of situations that have occurred at other airports. As recently as April 5, 1994, the FAA wrote to the Chairman of the Fairfax County Airports Advisory Committee, lending FAA's support to proposals for stringent land use compatibility policies.

The question arises as to what the FAA can do to discourage new noncompatible development around airports when local governments do not pursue the policies of a Loudoun or Fairfax County. The IG's recommendation is to deny Federal funding to mitigate an airport's noise impact on new noncompatible development. The FAA is currently considering whether such a policy would provide sufficient leverage to alter the land use practices of local jurisdictions that are not airport owners. On the negative side, the brunt of this policy would fall on airport owners, who may have very limited influence over land development decisions, and on citizens living around airports, who may not have been fully cognizant of the noise problem when they purchased properties. As time passes, the question of who was there first--the airport or the homeowner--tends to assume less prominence. In view of the complexity, sensitivity, and uncertain consequences of a revised Federal funding policy, the FAA is not prepared to pursue such a policy without additional analysis and broad industry and public review.

The FAA has proposed in the Administration's AIP reauthorization package the provision of land use compatibility planning and implementation grants to states and local jurisdictions around airports that are not airport sponsors. This proposal reflects discussions by the Study Group on Compatible Land Use, established by the FAA to assist in the development of a national strategy. Participating in this Study Group are representatives of airports, the airline and air freight industry, the business aircraft community, state and local governments, NOISE, and academia.

While the Study Group on Compatible Land Use is not due to submit recommendations to the FAA until the end of 1994, preliminary discussions have focused on better cooperative planning interactions between airport owners and jurisdictions controlling land uses, supported by appropriate Federal incentives -- rather than either Federal land use mandates or punitive Federal financial measures. Comments submitted on the Administration's compatible land use initiative in

AIP reauthorization by organizations represented on the Study Group have improved upon this initiative and are included in Section 116 of the March 11, 1994 staff draft of Senate bill 1491. (Section 116 additionally includes a requirement that land use compatibility grants must be co-sponsored by the airport owner, which is a concept that we believe was inadvertently carried over from a previous draft. Co-sponsorship does not presently have industry, local government, or FAA support.) The FAA expects to pursue additional new initiatives to discourage the construction of noise-sensitive development around airports after receiving the recommendations of the Study Group on Compatible Land Use.

SUSPECTED UNAPPROVED PARTS

Mr. WOLF. Another one was on the issue of suspected unapproved parts. Last year, in testimony before the committee, the FAA did not seem to think that bogus parts presented a major safety problem. The IG again recently completed an audit of FAA-approved repair stations which disclosed the use of aircraft parts of unknown design, quality and origin.

In their response to questions from this committee at a hearing last month, the IG testified, quote, "At 12 of the repair stations we reviewed of those parts sampled, 43 percent of all newly purchased parts and 95 percent of parts purchased from distributors or brokers did not have reasonable evidence of either FAA production approval status or conformity with U.S. industry specifications."

The IG also indicated that the response to the report from the FAA Administrator was that the FAA does not agree that the weakness identified by this report was sufficiently material enough to be reported to the Secretary and Congress. NTSB, since 1984, has said there were 76 accidents in which bogus parts were involved, and then they go on and there were some other pilots and people killed.

Last year, the committee included language that directed DOT to initiate a rulemaking to establish regulation of parts brokers. The only link in the chain which is not currently regulated. We put the language in, the Senate knocked it out. Based on that, do you have any feeling that we should put the language in and try to convince the Senate to keep it in? Or would you now support that?

Mr. HINSON. Well, bogus parts or counterfeit parts, whatever you want to call them, or unregulated or uncertified parts may, I say may, constitute a serious problem. It is an issue that is, frankly, vexing to me because I have asked our people, and I have read the IG's report. From my own experience being an operator and selling parts, a lot of parts, it is not quite as straightforward as one might assume. We agree with parts of the IG's report and we disagree with parts of her report.

I think what I would like to tell you this afternoon is that what I have been doing is working with the senior staff at the FAA to try to really understand this. I knew this question would be asked and I could have posited some answer that would be acceptable to everybody.

Mr. WOLF. We know you would not do that.

Mr. HINSON. I would rather tell you that I am concerned about this issue, too. I do not know what the answer is yet, but I am going to find an answer, and I am going to do that as quickly as I can.

Mr. WOLF. Okay, because it is also a safety issue, and who knows what groups are involved. It does appear that there is a problem and something should be done, but that is fine.

The last question is airport security.

Maybe I will just come back after voting and ask it. I don't want to keep—do you want to go vote?

Mr. CARR. Go vote.

Mr. WOLF. I will go vote and then come back and ask that one question.

Mr. CARR. We will take a short recess.

[Brief Recess.]

Mr. CARR. We will resume the hearing.

I understand that there is going to be a vote in about a half-hour, and so I am going to modify what I had earlier announced. We will go that half-hour. When we have the next vote, we will adjourn for the day. The Administrator is going to get on a plane and go to Seattle later today, and given time, space, and distance and everything, I have excused him from being here tomorrow. The Deputy will be here; is that correct?

Mr. HINSON. Yes, sir.

FLIGHT INSPECTION OFFICE CONSOLIDATIONS

Mr. CARR. And we can continue our questions then.

I don't see the associate staff here, but you might put a phone call out to some folks and indicate that if they want to ask a question of Mr. Hinson on the record, they best get over here quick. That is the way we will do that.

Let me just say that given time is so short, I am sure with some of these things we will get back with the Deputy tomorrow; I would like to just alert you that I have a little bit of interest, and I would like to speak with you maybe at some other time about the handling of the flight inspection area offices. I know that there is a consolidation under way.

We were grateful of the news that Battle Creek was not going to be eliminated. The complexion of its work force might be changed. Do you have any late breaking information about what the plans are for the flight inspection consolidation?

Mr. HINSON. No, sir. I think you understand it correctly. Battle Creek will continue. The Tokyo and Frankfurt offices are going to be relocated to Oklahoma City, for the most part.

Mr. CARR. And the aircraft will be going to go back and forth; is that what I understand?

Mr. HINSON. Yes, sir, that is correct. It is less expensive to do it that way.

Mr. CARR. Might be less expensive to base that function somewhere other than Oklahoma City. There are some of us who think that Oklahoma City likes to grab off things for their own purposes.

Mr. HINSON. I understand that, Mr. Chairman.

Mr. CARR. I have nothing against Oklahoma City. Some of my best friends live in Oklahoma City. It is just a matter that we have other areas of the country that could service Tokyo and Frankfurt ably. Why Oklahoma City?

Mr. HINSON. There were some cost analyses done, and there are some synergies that relate to the technical training and facilities we have in Oklahoma City that are consistent with the flight inspection operation. It is viewed, from the employees perspective, to be a very desirable location for most of our flight inspection employees. So there are a number of reasons, Mr. Chairman.

CENTRALIZING PRODUCTION OF FLIGHT PROCEDURES

Mr. CARR. What about the issue of centralizing the production of the procedures in Oklahoma City? That could probably be done anywhere, but I think the key connection, and unless someone con-

vinces me, I am persuaded that having people who actually make the flight checks also produce the procedures is also an important synergy.

I have been given some examples of flight procedures that have been crafted, drawn, if you will, by people who are not pilots who will make them really not that user friendly. I think it is an important synergy to have pilots producing procedure charts.

Mr. HINSON. Yes, sir, I understand we have centralized that or are in the process of doing that. I quite agree with you that we need to make sure that that particular discipline of drafting approach procedures and policies is very carefully guided and reflects the best thinking of our most able people in that area.

Mr. CARR. But what I am saying is I think that ought to stay in the area office where they are actually out flying those procedures; where there is synergy between making the flight checks on a particular ILS, going back and noticing that there are obstructions that need to be highlighted, or noticing that because they have been flying the approach, they know there is a better way to do it.

You are not going to get that if it all goes to Oklahoma City, if the creation of the IFR flight procedures, terminal flight procedures, are all in Oklahoma City. You are going to miss that element, even if the persons who might be drawing those procedures are pilots.

Mr. HINSON. I suspect we have had this debate in the agency before, and before I say something else that I should not say, let me find out for you.

Mr. CARR. Okay. If you would report back to us, because I am pretty interested that that capability still stay in the area offices. You might want to lessen it. You might want to change the mix, and so on, and so forth. I understand there might be some other efficiencies in consolidating in one place, but I want to highlight that I have an interest in that to you.

[The information follows:]

Production efficiencies will be gained by a more streamlined, centralized procedures workforce devoted solely to the development of instrument flight procedures. Efficiencies include:

Procedures capability increase of approximately 35% without increased staffing which reduces procedures backlog and accommodates procedures development activities associated with emerging technologies such as GPS.

Reducing the number of procedures supervisors from 20 to 7 which increases the supervisory ratio from approximately 1:5.4 to 1:11.

Reduced training requirement costs through reduction in the number of pilots.

In addition to the efficiencies realized, qualified and trained inspectors from the respective flight inspection area offices will evaluate and fly all instrument flight procedures. These inspectors will continue to be familiar with the procedures, terrain features, navigational aids, and other considerations affecting the overall quality of our procedures products.

THIRD CHICAGO AIRPORT

Mr. CARR. Where are we with the third Chicago airport?

Mr. HINSON. The State of Illinois has provided the funds to the consulting group that is completing the study on the third airport site.

Mr. CARR. But there is no FAA money in this?

Mr. HINSON. No, sir, no FAA funding is in there.

DETROIT AIRPORT RUNWAY EXTENSION

Mr. CARR. Well, I would indicate that at least this Member has a real serious problem with launching off into a third airport at Chicago until we examine what we can do at O'Hare. And I know they have some plans, and I want to speak in support of those generally.

I wanted to also just alert you to the fact that we are trying to formulate in Michigan a plan for lengthening the runway at Detroit City Airport. I do not know how briefed you are on that one, but some years ago a former mayor had a rather grandiose plan to create the next major hub in America at Detroit City. It was never going to happen, and I would not have supported it.

However, we did recently have a carrier, Southwest Airlines, that had been for five years serving Detroit City. And doing so successfully with one glaring exception: the runway was not long enough to take off fully loaded.

So with the lack of those efficiencies and other destinations having a better infrastructure, for example, a longer runway, that they could more effectively utilize their aircraft, they made the choice to pull out of Detroit City. But I have been assured by that airline that there is a market there for a service they would like to provide. The shortcoming was about 1,000 feet of runway.

Now, there are problems in lengthening the runway. It is in an urban area. It is not going to be an easy fix, but this mayor, our new mayor in Detroit has abandoned the grandiose schemes of his predecessor and is merely about the nuts and bolts of trying to make that runway long enough so that an airline like Southwest might return and serve a market that has already been proven.

So I wanted to signal to you that I am going to be working with our new mayor to let him know or let you know that we would hope to have some favorable consideration when other airports of a similar situation are considered.

Mr. HINSON. When the airport applies to us through the regular process for grants, it will be given every consideration. I know that situation because I was in Chicago then. There are some community issues there that they had been unable to resolve. I think if they can resolve those, which are out of our purview, and they come to us in a formal fashion, we will respond accordingly.

PORTABLE ELECTRONIC DEVICES

Mr. CARR. Well, I can predict for you, I think, that those collateral issues are going to be solved and so we will be looking forward to working with you on that.

I have another area that I want to discuss, again briefly. Everybody who has been in these hearings knows I have a pet peeve about the issue over portable electronic devices, PED's.

Last year, you were not here, but I had a great story about how I was on my way to have dinner with Steve Wolf, and we backed away from the gate at Detroit and it was announced that the radar was down and we would have an hour delay in the airplane. I mean, for whatever reason, they did not want to take the airplane back to the gate. And so I thought I would do some telephoning

from the airplane while it is sitting with only the APU running, and I was told I could not do that. So that was last year's story.

This year's story is Northwest Airlines. We are at Detroit again and coming back to Washington, D.C., and we get out to the end of the runway and we start our takeoff roll and abort the takeoff and go back to the gate. Turns out a faulty fuel sensor was giving a reading. We pulled back up to the gate, jetway is attached, door is opened, and it is announced that everybody should please stay in their seats because we have maintenance people coming aboard to see if we can fix this thing.

And once again, I thought, well, I will pull out my cellular phone and call my office and tell them I am going to be delayed, and I am told, in rather strident terms, that I cannot use my cellular phone.

They cannot do that. Now, I have been hammering on, and Tony knows all about this. Tony Broderick. When are we going to get this issue resolved? For three years now I have been hammering on this thing.

We put money in here to get a study going, to prove once and for all what these devices do or don't do in airplanes. Pending that study, we thought we had an agreement about what some reasonable parameters would be on the use of PED's on airplanes. And the agreement said that when the plane is on the ground, it is not doing anything, particularly when it is at the gate, when the jetway is attached and the door is open, anybody can use their PED's if they want. And still we get this.

This happened three weeks ago, Tony. When is the FAA going to tell our friends in the airline industry you cannot do that?

Mr. HINSON. You had asked for a report. The RTCA is due to deliver to the FAA that report at the end of June. They are on schedule, according to their manager of this——

Mr. CARR. They are on their schedule, that is the problem. For three years this has been going on.

Mr. HINSON. We will share it with you immediately when we get it.

CWF TRAINING AT THE ACADEMY

Mr. CARR. Well, I would ask, through you to Tony, to put out yet another advisory, Tony. If this happens to me, and it is still happening—and I did engage in a fairly friendly conversation with the commander of that aircraft later on, and he pulled out his book that gives his guidance from his company and the guidance was totally inadequate. Absolutely, factually, totally inadequate.

And so I just wish that you would put out another advisory that merely because you are sitting in an airplane due to some maintenance issue, you do not lose your rights as a U.S. citizen. Now, I know they have all those little phones installed in the back of those seats and they want you to use them so that they can get some money off of your sitting there desiring to communicate. But when you are in an airplane, you are not a prisoner. You are obliged to follow the rules and regulations required by safety, but you are not a prisoner and you do not lose your rights to behaving in a responsible manner as an individual citizen.

So on behalf of the passengers of America, I want to speak up on that one. And I have some detailed questions on that that I will ask you.

I want to ask a couple of issues on the MARC program and where we are going generally on controller training. Is Oklahoma City running right now, the Academy? Is there a class there right now?

Mr. HINSON. We have about 300 in the pipeline, someplace. I cannot answer that, but I can get an answer.

[The information follows:]

Currently the Academy has approximately 300 Air Traffic students attending various courses at the Academy. These include controllers receiving initial qualification training, advanced controller training and specialized training for staff members, supervisors and managers. During FY 1994, we expect to train approximately 2,100 students at the Academy. Of the 2,100 students attending, 164 will be current FAA employees enrolled in initial qualification training; i.e., Cooperative Education Students, and Air Traffic Assistants. The remaining 1,940 students are FAA employees who will receive advanced or specialized training.

Mr. POLLARD. I think we have had two classes out there and they were people that were already employees of the FAA.

Mr. CARR. So we are not training new controllers?

Mr. POLLARD. Not new controllers there, no, sir. Not new employees that are new controllers. They are working for us.

Mr. CARR. Would you introduce yourself, Bill, for the record?

Mr. POLLARD. Bill Pollard, Associate Administrator for Air Traffic.

FUTURE REQUIREMENTS FOR ATC TRAINING

Mr. CARR. I would just ask you for maybe some general comment, and I know this is going to come up. Mr. Sabo has an interest in this area, obviously, from his geographic point of view, as well as his interest in training, but it appears to us that somehow or other FAA has to resolve this particular issue of air traffic control training.

I, for one, do not have a particular brief for which way you decide it. Mr. Sabo might. But we either close the Academy and use FAA personnel to certify training at colleges and universities around the country, such as MARC, and we get our training, our controllers, from there, or it would seem we do not hire through colleges and universities anymore, and we keep Oklahoma City's Academy warm with retraining or some other thing. And when we do have a need for new controllers, we open up with the valve and we pour some through.

It seems to me that while we are reinventing government, we should not have both of these methods out there not doing cost-effective things.

Has MARC got a class now? Mr. Pollard, does MARC have a class now?

Mr. POLLARD. Yes.

Mr. CARR. At some point they have been asked to stand down; not to have a class?

Mr. POLLARD. Yes, sir, they have a class that I believe graduates this month. It is the last class they are recruiting for. We have gone out to those programs, kind of like MARC, with other college

training initiatives, and told them our hiring is greatly reduced and we do not have the need for their students any longer.

Mr. CARR. It is an unusual situation, because the air traffic control is really the only employer for people who go through this. It is not like where the Federal Government would hire some but some could go to other employers, and so the private sector or the colleges and universities of America are free to go do other things.

Has there been any discussion of what the plan ought to be?

Mr. HINSON. I think your question is very germane, Mr. Chairman. Historically, the air traffic controllers that have been trained at the schools, with MARC being one and there are others, are the result of the fact that in the early 1980's we were short controllers and needed an expeditious way to get controllers into the field and the private sector. The universities stepped in to help our own training efforts in Oklahoma City. That process has now matured and we have a relatively full controller work force, with no great unmet demand. In addition, we have some former controllers, of which you are aware, who are interested in coming back to the agency.

I agree we need to resolve to the degree that we can whether or not we do it at Oklahoma City or we do it in the university environment, or whether we can still continue to do it in some fashion in both. I might point out, in Oklahoma City we do a lot of other training, not just controllers. We train lots of other people there, too, for other disciplines. It is a question we need to address and we will do so.

Mr. CARR. Well, please include Mr. Sabo, too, because I have been talking to him. He is an important Member of this Committee and he is also Chairman of the Budget Committee. He has a major interest here. I do not want to close him out of the discussion.

It seems to me we cannot continue to do both, and I would like to know what leadership you can provide us in which way we really ought to go. Indeed, maybe OMB has some ideas about this, I do not know.

The time is getting late.

Mr. CARR. Mr. Wolf.

GREGORY MAY MANAGEMENT TRAINING

Mr. WOLF. Thank you, Mr. Chairman.

I have several questions. One just caught my interest that the staff had put together.

Let me ask you this, and I do not know that much about it, but I am going to take a look at the tape. Says here, last year a television news station ran a story alleging cult-like training by FAA consultant Gregory May, at the Center for Management Development.

According to the IG, who was conducting an investigation, it is alleged, among other things, that, one, trainees were tied at the wrist in small groups for a 24-hour period and required to sleep and eat while tied together; two, required to use meditation exercises; and, three, subject to name calling.

Do you know anything about that?

Mr. HINSON. No, sir, I do not.

Mr. CARR. Sounds like Members of Congress. We are sort of chained together and we are subject to name calling.

Mr. WOLF. That is why he is running for the Senate.

If this is accurate, and they tell me there is a tape and I will look at the tape, but if it is accurate, it ought to stop. And then the question goes on, and, again, I know nothing about this—

Mr. HINSON. Maybe I can, if I may interrupt.

Mr. WOLF. Sure you may. Absolutely.

Mr. HINSON. I don't think that the IG has issued a report that I am aware of on this. However, I do know our training program at the Center for Management Development has been completely revamped. I do not believe this person is any longer associated with FAA in any way whatsoever. I think while we can look back and learn some lessons, I think where we are going is okay.

Mr. WOLF. But I still want to know more about it. The question goes on, it said: Mr. May had been under contract with the FAA. Then it said: Within a few weeks after the airing of the show the Director for the Center for Management Development received the Presidential Rank Award based upon the recommendation of senior FAA officials, including then Acting Administrator Del Balzo.

Since the allegations of a serious problem at CMD, which was known at the time, shouldn't they have been investigated before the administrator of the facility received the prestigious award? This sounds crazy to me, frankly, and to be putting Federal employees through this type of activity. If you are talking about leadership and leadership talents and things, but to be tied at the wrists.

And, again, I don't know if it is true. They tell me there is a film. I am going to watch the film. But if somebody can come up—you do not have to, but maybe your Deputy or somebody come up to see me, I want to see it and see if it has gone on. It sounds a little crazy to me. And I may even interview some of the people that have gone through this.

Mr. HINSON. We will do exactly as you ask.

CENTER FOR MANAGEMENT DEVELOPMENT—NEEDS AND COSTS

Mr. WOLF. Why do you even need the Center down there when you are cutting back all the budgets?

I listened to what Mr. Mead said, and the Chairman asked you the question and we are talking about the whole safety issue, and Ken Mead raised a couple of good points, and I thought you had pretty good answers, but why do you need the Center if this is where we can save money?

Why could they not just rent the Xerox facility or the local Comfort Inn or something like that? And what does the Center cost?

Mr. HINSON. I cannot give you the exact cost data on the Center, but I think we own it. Let me ask.

Mr. STOER. We have a 10-year lease.

Mr. HINSON. We have a 10-year lease.

Mr. WOLF. How many employees are at the Center?

Mr. STOER. Six FAA employees work at the Center. All the instruction is handled under contract.

Mr. WOLF. It sounds to me, Mr. Administrator, that what you said is we are going to have to learn to do things differently. And

I was shaking my head agreeing with you that some things we need to do, we are going to continue to do, such as safety; other things we would like to do but we can no longer do. Having this Center seems to me that it is in that second category.

Maybe not even in that. Maybe in the third category. Maybe something that is not even needed. Why do you not just look at selling the Center and doing away with that and putting the money into safety or putting it into something with regard to—I see this and I see the FAA standards on the operation of the plans and I read Mr. Mead's statement, and I don't know, is this needed?

Mr. HINSON. That is certainly a fair question. I think you would agree, though, I certainly do believe that we need training for our employees and we need good training.

Mr. WOLF. You have Oklahoma City. I understand that.

Mr. HINSON. Even with the downsizing and assuming we stay in our present structure, all in one place, we will still have 46,000 people and about a \$9 billion corporation, depending on how you look at it. I think you would find that any corporate structure of that magnitude in any private sector company has intensive and ongoing training of all kinds at all levels.

Mr. WOLF. That is true.

Mr. HINSON. So the challenge you are posing for me is how do we continue to do that in the most cost-effective way. I think that is the question, if I could extrapolate it.

Mr. WOLF. Right. And, again, not knowing, frankly, much about this until I happened to be glancing through the questions that the staff put together, and listening to you, and I think you made a very persuasive case, frankly, and knowing that downsizing will hit you, I want to tell you, you are going to lose some awfully good people.

Mr. HINSON. Yes, sir, I know that.

AGE 60 RULE—IMPACT ON SUPPLY OF PILOTS

Mr. WOLF. There are a lot of people taking the buyout for different reasons, and I think you are going to lose a lot of outstanding people. You can almost argue if you did not need them, why would they be there? But I know people taking the buyouts in many agencies, and I don't think it is necessarily going to be good for the government that we lose these people.

Anyway, look at it, have somebody come by and tell me what the budget is, and I want to know about this program with regard to Mr. May. Maybe how long you have retained the gentleman and how much we have paid him over the last 10 years.

On the airline pilot issue, and with your being a pilot you will be able to help me, and, frankly, I think that is the advantage Mr. Carr has had as chairman of the committee, being a pilot. I am not familiar with that. But in a just-issued 1994 annual report published by the Bureau of Transportation Statistics, there is a discussion about the potential for increased retirements of airline pilots in the next 10 years, unless the mandatory age limit of 60 is raised.

According to this report, 23,000 pilots, or one-third of the work force, will retire in the next decade under this limit. And of course the military is no longer turning out pilots like they have in the

past. Is this an issue the FAA is focusing on? Are you concerned about it?

And lastly, should there be given any thought to changing the mandatory retirement age, or at least some phased-in effort? Is this a good idea, bad idea, or are we looking with regard to that based on this report, which you may not have seen?

Mr. HINSON. There are several questions in your comments. One is to what degree does the agency have an interest in an adequate supply of pilots for future needs? I mean, well-qualified pilots. And, of course, we have a high interest in that. We track closely pilot starts, military retirements, so forth, and so on. That issue is an issue all of its own, but it does relate directly to those pilots that are going to retire because they are 60 years old. Should we increase the retirement age to perhaps mitigate that to some degree, or just because, you know, 61 or 62 or 63 is just as safe as 60?

Mr. WOLF. Yes.

Mr. HINSON. Of course, many pilots approaching age 60 would like us to take it up very quickly.

AGE 60 RULE

Mr. WOLF. How old are you, Mr. Hinson?

Mr. HINSON. Sixty-one. I still fly, so I am somewhat sympathetic.

Mr. WOLF. You were a commercial pilot, too?

Mr. HINSON. Yes. Yes, I was. We had a hearing late last summer here in Washington, on the "Age 60" rule. We have taken evidence from everybody at that hearing, plus a number of other sources. And we are in the process in the agency now of reevaluating the "Age 60" rule. There are, as you would expect, various viewpoints on the "Age 60" rule.

The Airline Pilots Association, which represents a lot of the airline pilots in the United States, thinks it is a good rule and have taken the position it should stay. There are many individual pilots, however, who think it is a bad rule and we should look at it another way. There are physicians and medical people on both sides of the question. Some who say, well, we have had no accidents in the United States as a result of crew incapacitation, therefore, the rule is good. In other words, any problems would have occurred beyond "Age 60," and we did not have those because these people were no longer involved in active flying. Others say you do not know that because the population as a whole is getting healthier now as it gets older. We know more about our health than we did 25 or 30 years ago when we set the rule, or whenever it was. So we are trying to address this issue. I don't know what the answer is going to be yet, but we are working hard on it.

Mr. WOLF. I think it is an important issue. I don't know that I think that is what you ought to do, but if the military is turning out fewer and fewer pilots, and with the cutbacks, I would feel much more comfortable if you were dressed in your uniform, with a man looking the way you do, than somebody coming in 31, or something like that.

Mr. HINSON. I must tell you, every time I get on an airliner now, Congressmen, I realize all the people up there are younger than I am, and that does give me pause once in a while.

Mr. WOLF. So if you can keep us informed. When will the decision be made?

Mr. HINSON. I cannot tell you that because I do not know. Everybody is asking me that question. When I know, I will let you know right away.

AIRPORT SECURITY

Mr. WOLF. Airport security, the PanAm flight. Where are we with regard to that? 103. It has been, what, five years now?

Mr. HINSON. Yes, sir. We have, obviously, a very active security program underway. We have gone from essentially zero employees to approximately 812 employees in our security force now. We have security people all around the world at every major international airport where United States citizens board for flights to the United States. They are working closely with the local airport intelligence communities to make sure we understand the threat levels at those airports so we can take appropriate actions if those threat levels change.

Not only did we have to implement security in Sections 107 and 108 of our regulations, but we were mandated to develop explosive detection devices and do research on hardening baggage containers so that they could contain limited amounts of explosive. Both of those programs have been active.

We do not yet have a technically feasible operational explosive detection system. I am sure you appreciate the fact that it is easy to say "do it", but science has its own time. The principal problem we have with it, among other things, is that all of the systems developed so far have a very high false indication rate, which makes their use on a daily basis impractical. We would back traffic up for a long, long way in a busy airport. They just could not be used. The people that provide and work on these sorts of technologies are, however, getting closer. I think I can say we are confident that we will have that technology.

STATUS OF FOREIGN SECURITY TECHNOLOGY

Mr. WOLF. Are we farther ahead or are the French or Japanese further ahead? Who is further ahead on it?

Mr. HINSON. Well, I think that is a difficult question to answer. I am hedging because we have set different requirements, perhaps, than others have. I am not familiar with what requirements other countries may have set, although we talk to each other. We have very stringent requirements designed into our request for technology from industry. So I guess my answer would be we are satisfied that our requirements will meet the needs. We do not know whether our friends in other countries will or not.

Mr. WOLF. I was interested from that perspective, but also from American jobs, too; making sure we do not lose those like we did to the VCR and other technologies.

Mr. HINSON. I understand what you are saying. Our industry is working pretty hard on this. One of my pleasant duties in coming to the FAA was to interview and ask to join me Admiral Irish Flynn, who is the new head of security for the FAA. Admiral Flynn brings with him background of not only working with one of the manufacturers of this type of device, but also having had part of

his career experience be as one of the senior, if not the senior anti-terrorist expert in the United States Navy.

Mr. WOLF. If you can keep the Committee up to date on that, I would like to know.

Mr. HINSON. Yes, sir.

[The information follows:]

The FAA has worked closely with other countries to agree on EDS performance standards that are consistent with our strict national certification criteria, and to develop and test equipment to meet these performance requirements. Nearly all of the technologies now being tested or demonstrated in other countries are American. Their development in nearly all instances has been funded or assisted by FAA.

Based on our test results, including recent joint tests at UK airports, the American technologies—designed and produced in the United States—are currently the best produced anywhere in the world.

EMPLOYMENT CHOICES OF FORMER FAA PERSONNEL

Mr. WOLF. One last question and one request.

I am trying to think of how to put this. I have been concerned about the relationship between people leaving government, people who have come to Washington to do good, then leave to do well.

Obviously, there is nothing wrong with that, to a certain degree. But I have been a little bit concerned about the number of people who have left to work for foreign interests, but also within the government and perhaps even in the FAA.

If you could canvas or look to see, of your major contracts, how many former FAA employees are working for the companies that are involved. I was led to believe that you had several who were at IBM who had been involved in the AAS. That may or may not be true.

And let me just set the record straight that just because they are there does not mean there is anything wrong, but I think disclosure is helpful.

Mr. HINSON. Yes, sir.

Mr. WOLF. I think I will end with that.

Thank you very much.

Mr. HINSON. Yes, sir, thank you, Mr. Wolf.

Mr. WOLF. Thank you, Mr. Chairman.

Mr. CARR. Mr. Durbin.

PAY DEMONSTRATION PROGRAM AT CHICAGO

Mr. DURBIN. Thank you. I apologize for coming in late, but I am trying to juggle another Subcommittee at the same time, and I have until 4 o'clock when we resume on that one. I know you have been here a long, long time and I will make it as brief as I can.

Tell me your views on the pay demonstration project at O'Hare. Air traffic controllers tell us if we eliminate it, it could seriously jeopardize the quality of service there and the people who are available.

Mr. HINSON. First of all, how are you Congressman?

Mr. DURBIN. Fine, how are you.

Mr. HINSON. Nice to see you. We discussed that a little bit earlier, but let me quickly say, the pay demonstration circumstances that created this project back were in the mid-1980s. The project was put in place in the later 1980s for the five-year period, but today's circumstances are quite different. We have a mature staff of

controllers. We are now paying locality pay in Chicago, in New York, and in other localities, which we were not paying five and six years ago.

Mr. DURBIN. Will that make up the loss or the difference?

Mr. HINSON. Not all of it, but some of it. We have ample evidence that there are many controllers who would like to move to Chicago, independent of the pay demonstration. The last time we had a bid for six or seven openings there, we had 65 people submit their names to move to Chicago.

Mr. DURBIN. Was that at an enhanced pay level?

Mr. HINSON. No, no, my understanding is—I want to double-check that.

Mr. STOER. It would have been expired by the time they would have been selected.

Mr. HINSON. The pay demonstration project would have expired by the time they would have been selected. So they were aware that it was going to expire; and certainly not this Administrator and certainly not my senior staff ever looks forward to reducing anybody's income or taking away a benefit that has been in place for five years. That is a very difficult decision.

But to give you some sensitivity to how we have to make trade-offs in an era of diminishing resources, it costs us about \$20 million a year to run the pay demonstration within the agency. If we continue the pay demonstration, we are going to have to get that \$20 million from other parts of the agency.

If I were required to reduce our staffing an equivalent amount, it would be an equivalent of letting go 275 full-time equivalent employees, or said another way, about 550 people would lose their jobs because we have part-time and other things. So if I had to take this pay demonstration and provide the money strictly from reduction of personnel in other parts of the agency, it is about 550 people.

So when we looked at all these trade-offs, we concluded that it has served its purpose. It was successful in getting people to bid into New York, Chicago and other high-traffic areas, but we believe that purpose has now been served. We have a mature work force, and it is no longer required.

COMMUTER SLOT RULE—IMPACT AT O'HARE

Mr. DURBIN. Let me stay on the subject of O'Hare and talk about the commuter slot rule. The slot system was obviously put in place for safety and noise considerations, but it has become somewhat important to small- and medium-sized communities to guarantee access. We asked in last year's appropriation bill for you to help fund a study through the Illinois Department of Transportation on air service for small- and medium-sized communities.

Help me look to the future. What is the future in terms of our access in down state Illinois, Springfield, communities like that, to hub airports like O'Hare?

Mr. HINSON. Let me start with an overview. We have, at the request of the Secretary and by the Vice President's Reinventing Government Initiative and by the Airline Commission, begun a review and detailed study of the entire high-density rule. It has been

in place for many years now. That includes O'Hare, Kennedy, LaGuardia and National Airports.

The purpose of that study is to ask the question: are the circumstances that caused us to put the high-density rule into effect in the first place, still valid? If they are, to what degree? Or if they are not, why not? And what is the proper way in today's environment to deal with the issue of crowding at those four major important airports? That study is due to be completed for the Secretary in November.

Mr. DURBIN. Did I hear you mention the access question as part of your concern in this study?

Mr. HINSON. Of course, yes, sir.

Mr. DURBIN. For the small- and medium-sized communities you said it would be completed by—

Mr. HINSON. By November. By law, we are required to always consider the questions of access and cost for all users.

SMOKING INCIDENT ON AMERICAN AIRLINES

Mr. DURBIN. Good. I have a couple other questions. One, I sent you a letter about three weeks ago concerning an American Airlines incident involving some passengers—

Mr. HINSON. Yes.

Mr. DURBIN [continuing]. Smoking on the plane, dismantling a smoke detector and threatening the air crew. Do you know what is going on with that?

Mr. HINSON. Yes. In that circumstance, what happened when they landed, the captain, the police, the airport police came and handled the entire transaction. The FAA was not involved in any way. In fact, the FAA did not even know about the incident for many days afterwards.

We just recently received through our internal processes, the FAA's report on this and we are proceeding with an investigation now. But it was simply, there was a disconnect between the local airport and the FAA. We did not know about it.

Mr. DURBIN. I think it is pretty important.

Mr. HINSON. Of course, it is.

Mr. DURBIN. The FAA follow-through. Because the feedback from American Airlines and the crew was we thought we were doing the right thing and these folks went way beyond just being unhappy. They were threatening the crew and we stood up for what we considered to be our position.

Mr. HINSON. Yes.

Mr. DURBIN. And I think FAA's response here will send a signal again that we stand behind what we say here in terms of regulation and law.

Mr. HINSON. We will do that.

AUGMENTED CREW CONCEPT FOR FLIGHT ATTENDANTS

Mr. DURBIN. The last question I will ask you is about the, if it has not already been asked, is the augmented crew concept for flight attendants. Has that been addressed at all?

Mr. HINSON. No, it has not.

Mr. DURBIN. We have heard back from some of the flight attendants and they are concerned as to whether or not this proposed

augmented crew concept will adequately address their concern about fatigue for flight crews.

Mr. HINSON. I have with me today, Congressman, Mr. Broderick, who is over our certification side. This is an issue I am not personally familiar with, but I think he is. So let me ask him, if you do not mind, to address you on that.

Mr. BRODERICK. Tony Broderick, Associate Administrator for Regulation.

We have a rulemaking that we are just finishing up on that specific issue. The issue you raise is part of our consideration and in order not to endanger the rulemaking process, I would prefer to just let that go on and we will act on it very appropriately, and as I said, specifically address that issue.

Mr. DURBIN. Fair enough. Thanks.

Thank you very much.

Thank you, Mr. Chairman.

Mr. HINSON. Yes, sir.

CLOSING REMARKS

Mr. CARR. Once again, thank you for your cooperation and we will adjourn now until tomorrow, and we will be glad to welcome the Deputy Administrator.

Mr. HINSON. Do not make it too difficult for her, Mr. Chairman.

Mr. DURBIN. We would not dare.

[The following questions were submitted for the record:]

AVIATION WORKLOAD INDICATORS

Mr. CARR. Mr. Hinson, according to data presented with your budget, the FAA expects most indicators of aviation workload to increase in fiscal year 1995, after two years of flat or declining activity.

For example, revenue passenger miles are expected to go up by 5.2 percent, IFR aircraft handled is up 1.8 percent, and operations at airports with FAA towers is up 1.5 percent.

However, your fiscal year 1995 budget proposes to reduce staffing by 2,075 staff years, 4.1 percent, compared to the fiscal year 1993 levels. Recent FAA testimony indicates the reduction could be as high as 6 percent of your work force. Doesn't the increasing workload raise the risk that you will not be able to accommodate such a large staffing reduction and maintain your current level of service to aviation users?

[The information follows:]

FAA will be reducing its staff by 12 percent (6,505 FTE's) through FY 1999 in accordance with the Administration's policy as articulated in the National Performance Review. Staffing reductions have been targeted at the non-safety workforces and management layers in an effort to protect the safety critical workforces. The non-safety workforces will decline through continued application of a hiring freeze, attrition, use of early out and buyout authority, and agency initiatives to streamline organizations and reduce supervisory ratios. In addition, we are making a number of investments through the Capital Investment Plan that will increase the productivity of our workforce (e.g. remote maintenance monitoring; flight service station consolidation; aeronautical data link applications, etc.)

We expect to maintain and expand if necessary our current level of service to aviation users.

ATC SUPERVISORS-FAA STAFFING REDUCTIONS

Mr. CARR. You are not exempting air traffic control supervisors from the reductions? Why are these positions expendable?

[The information follows:]

The FAA, like all agencies, is streamlining operations and reducing the supervisor to employee ratio. A great deal of the resource requirement for supervisors was devoted to administrative duties. We are, where appropriate, reducing the unnecessary administrative functions that supervisors perform.

MAINTENANCE OF ATC EQUIPMENT

Mr. CARR. Maintenance of ATC equipment is a critical part of the FAA's mission. Without proper maintenance, flights are often delayed and safety can be affected. I understand that you will be cutting administrative support and management positions related to your maintenance activities, but not field maintenance.

What new management techniques or technologies are you implementing to allow your field personnel to work with less management oversight and less administrative support?

[The information follows:]

Airway Facilities has begun a number of initiatives in this area, understanding that simply changing structure does not make an organization work. We are in the development stages of a cultural change effort that includes self-managed teams and true empowerment. In addition, the changeover to an operations control center environment will allow for remote access to the field facilities and equipment and long-distance access to management. Automation capabilities will require less administrative paperwork. Please keep in mind, however, that these changes will take time and paradigm shifts as well as initial investments to develop and prototype.

NON-CONTROLLER WORKFORCE REDUCTIONS

Mr. CARR. When you exempt most of the air traffic control work force, that leaves about 24,000 positions which would be subject to a reduction of 6,000 by the end of fiscal year 1999. In other words, about 25 percent of your noncontroller work force would be cut.

With this magnitude of a cut, it is certain that you will be doing less of certain activities. Which activities will be affected, and have you quantified the impact to aviation users?

[The information follows:]

Senior level groups are currently examining out-year staffing and organizational options for the agency. Until these groups obtain final information on the aggregate and activity-specific effects of the buyouts and subsequently finish their work, it is not possible to specify which exact activities will be affected.

We do know the following, however:

We will never allow staffing reductions to denigrate system safety.

We will never allow staffing reductions to compromise our ability to effectively and efficiently provide necessary aviation services to the users of our national airspace system.

Instead, staffing reductions will be achieved in two ways primarily:

Current functions that are determined to be unnecessary, largely duplicative, and not vital to the mission of this agency will be consolidated, reduced, or eliminated, along with the staffing associated with those functions.

Current functions that are necessary, not duplicative, and vital to the mission of the agency will be candidates for re-engineering, whereby processes are streamlined, management layers are reduced, and employees are given greater authority. These changes will also allow significant reductions in staff.

It should be noted that all of the 6,000 reduction will not come from the non-safety workforce. For example, about 1,600 full-time equivalents will come from the Air Traffic and Airways Facilities activities as a result of contracting out Level 1 towers and downsizing efforts within Airways Facilities.

Naturally, we will keep the Congress apprised of significant decisions in this area as they are made.

FAA STAFFING REDUCTIONS

Mr. CARR. Your request assumes that you will contract out 25 low activity towers in fiscal year 1995, which results in a staffing reduction of 250 positions. Some have argued that the contracting out program should not be continued.

If we were to decide not to contract out any more towers, where would you cut the additional 250 positions in fiscal year 1995, and what effect would that have on aviation users?

[The information follows:]

If the 25 low-activity towers are not contracted in fiscal year 1995, we would be unable to reduce the controller work force by the 250 positions. The 250 position reductions would have to be foregone or would have to come from the other than controller work force which is already scheduled for significant reductions as the FAA and the Federal Government continue to downsize and streamline operations. Further reductions in those already planned for the non-safety work force would impact our capabilities in several areas including:

- National Air Space Planning;
- Environmental and noise analyses;
- International treaties and obligations;
- Training;
- Quality assurance; and
- Automation support.

BUYOUTS

Mr. CARR. What positions are being offered "buyouts" in fiscal year 1994, and how many people do you estimate to leave by the end of this fiscal year?

[The information follows:]

The general strategy is to offer buyouts to all FAA employees except those directly involved in safety-related functions such as air traffic control, field maintenance, and safety inspection. In some limited circumstances, we have offered buyouts to some parts of the safety workforce, e.g. in level I towers scheduled for contracting out and air traffic first level supervisors.

FAA's buyout window extends from March 31 to May 3, 1994. As of April 18, approximately 2,300 people have applied for buyouts. We have not yet confirmed that all of these employees are eligible for buyouts or will actually leave. Our best estimate at this point is that approximately 2,500 employees will take a buyout.

OST REDUCTIONS TO BUDGET REQUEST

Mr. CARR. According to internal budget documents last July, the FAA originally requested \$4.827 billion for operations in fiscal year 1995, a 5-percent increase over fiscal year 1994. The actual budget request is only \$4.58 billion, a reduction of almost \$250 million from your request, and no increase over fiscal year 1994.

What were the reasons OST gave for cutting your operations budget so much, relative to your request?

[The information follows:]

The question leaves the reader with the impression that OST unilaterally cut our budget. This is not correct. The budget material which was submitted to OST was a beginning point for a highly cooperative FAA/OST budget formulation process, which included excellent and thorough discussions between the Secretary and Administrator. The budget finally agreed upon was a direct result of these cooperative efforts.

Reductions to our initial submission were made possible through savings associated with streamlining activities, reducing staff, and implementing other NPR initiatives. These and other reductions ensured that, in the aggregate, the Depart-

ment's budget requests to Congress meet our country's transportation priorities and stay within necessary budget guidelines.

STUDIES RELATED TO FUNDING CUTS

Mr. CARR. Has the FAA conducted any studies to indicate that the additional cut of almost a quarter of a billion dollars in operating expenses can be accommodated without adverse impact on the users of our aviation system?

[The information follows:]

There are no studies associated with the reduction made by the FAA and OST to the FAA's initial budget material.

More important, are the following two points:

Comparing the final budget request to that initially submitted to OST is misleading. Instead, we should be comparing our 1995 request to that enacted for 1994. In this case, we find that, in fact, there is no cut associated with the FAA's fiscal year 1995 Operations budget request to Congress. Instead, our 1995 Operations budget request of \$4,590.9 million is \$400,000 above the enacted 1994 level. Such moderate growth is made possible by taking actions consistent with the NPR, namely streamlining processes, reducing management layers, eliminating any unnecessary or duplicative overhead functions, contracting out Level I towers, and consolidating select facilities.

The 1995 request will not adversely impact users of the aviation system. FAA management will never let safety and efficiency be denigrated.

TARGET FIGURE VS. BUDGET REQUEST

Mr. CARR. The final budget figure for fiscal year 1995, \$4.58 billion, is even lower than the target figure provided last summer by the Department, \$4.674 billion. Since the President's Executive Order calling for cuts in staffing was promulgated well before that time, it would appear that these further cuts had more to do with the allocation of staffing cuts within the Department. What happened between July 1993 and January 1994 to convince the administration that the FAA could be even further reduced? Were the agency's requirements changed in significant ways?

[The information follows:]

The target figure provided last summer was just that—a target and planning figure. It was not and was never intended to be a locked-in, final figure. Instead, the budget process begins at that point and then, after numerous iterations and trade-offs both within and among agencies, final budget numbers are agreed to which best reflect the priorities of the President.

As for the FAA, its requirements were not changed in any significant way between last summer and the submission of the President's Budget in February.

COMPARATIVE REDUCTION IN OPERATING FUNDS

Mr. CARR. In fiscal year 1994, the FAA's overall request was reduced in the President's budget by 11.5 percent, with the operations account taking the second largest reduction in percentage terms, 13.6 percent. The FAA's original request of \$5.3 billion was cut to \$5 billion by OST, and later cut to \$4.5 billion by OMB.

It would seem that, for at least the past two years, the FAA has done a poor job of convincing the administration of the need for increased operating funds. In fact, the FAA has been cut internally much worse than most of the other operating administrations. Why is this?

[The information follows:]

The FAA has by far the largest civilian workforce and the largest civilian salaries and expenses account in the Department. As a result, there are significantly more

opportunities for streamlining and for realizing NPR and other efficiencies in the FAA than in other transportation modes and many other agencies. This in turn allows for reductions in operating funds greater than in other operating administrations.

IMPACT OF BUDGET CUTS ON AIRLINE COMMISSION

Mr. CARR. The report of the National Commission to Ensure a Strong Competitive Airline Industry said: "a recent OMB memorandum contemplates hundreds of millions of dollars in operating and maintenance budget reductions for FAA in fiscal year 1995. These cuts would have a devastating impact and illustrate how the vagaries of the Federal budget undermine the funding stability necessary to provide efficient ATC services," (page 8).

Since the administration is trying to implement the findings of the Airline Commission, isn't it inconsistent that the President's budget should include the severe budget reductions which were criticized by that body?

[The information follows:]

The President's budget reflects the administration's comprehensive commitment to provide spending discipline, reduce budget deficits, strengthen economic recovery, streamline program delivery, and reduce staffing, especially overhead staffing. It includes spending plans that are the result of numerous choices among significant competing priorities. It may reflect individual, aviation-related spending choices that are different from those the airline commission would have made, but it was done in the context of choices necessary for the good of the nation's economy as a whole.

SUNDAY PREMIUM PAY

Mr. CARR. Current law, 5 U.S.C. 5546, requires Federal agencies to pay an additional 25 percent of basic pay to "an employee who performs work during a regularly scheduled eight-hour period of service—a part of which is performed on a Sunday."

This is called "Sunday premium pay." Even though the statute clearly says that the employee must work on a Sunday to receive the premium pay, and several Comptroller General decisions affirmed that interpretation, a U.S. Claims Court ruled in 1991 that employees are entitled to such pay even if they didn't work.

This may be a nice windfall for controllers, but it is ironic to see the FAA cutting over 2,000 staff years due to budget problems, yet using its scarce operating funds to pay employees extra for time they did not work. Would you explain how we find ourselves in this situation?

[The information follows:]

Prior to the April 1993 decision by the U.S. Court of Appeals for the Federal Circuit, FAA followed the regulations issued by the Office of Personnel Management (OPM) and supported by decision of the Comptroller General that permitted payment of Sunday premium pay only for work actually performed on Sunday. On August 20, 1993, OPM issued Federal Personnel Manual Letter 550-79, which required agencies to begin paying Sunday premium pay in compliance with the court decision. FAA has no choice but to comply with the changed OPM policy and pay employees Sunday premium pay for periods of authorized absence from work on paid leave which occur on Sundays. We also are required to provide back pay with interest to all employees who submit a substantiated claim for retroactive Sunday premium pay which accrued prior to implementation of the court decision. Employees may receive retroactive premium pay for the six-year period beginning six years prior to the date of their substantiated claim.

Mr. CARR. As I understand it, this costs the FAA about \$37 million in back pay, and about \$6 million annually. Is this accurate? [The information follows:]

The FAA currently estimates that about \$33.5 million is required to settle back pay claims for Sunday Premium pay and approximately \$6 million will be required for recurring annual cost. We have reached settlement agreements and subsequently paid \$24.1 million in back pay claims to the National Air Traffic Controllers Association (\$21.4 million) and the Professional Airway Systems Specialist (\$2.7 million) unions. We anticipate that another \$9.4 million will be required to settle back pay claims with the two remaining unions: National Association of Air Traffic Specialists (\$2.3 million); National Association of Government Employees (\$0.6 million); and individual claims by Air Traffic and Airway Facilities supervisors and staff (\$6.5 million). After all back pay claims have been settled we anticipate \$6 million will be required for recurring annual cost.

Mr. CARR. Why didn't the Administration appeal this case? [The information follows:]

Federal Personnel Manual Letter 550-79 states only that the U.S. Solicitor General decided not to request a rehearing of the decision before the U.S. Court of Appeals or to appeal the decision to the U.S. Supreme Court. We have no insight as to why that decision was made.

PAY DEMONSTRATION PROGRAM

Mr. CARR. Last year, the FAA proposed to end the Pay Demonstration Program early due to budget constraints, and the Congress provided an extension only to June 1994. Our committee report last year read as follows:

The committee's restoration is made to alleviate the impact on FAA employees by providing longer notice that the program will not be continued. However, those employees should begin accepting the fact now that the committee does not intend to continue the program beyond fiscal year 1994.

With the final data in on this program, does the FAA have any new evidence to indicate that the program is worth its cost?

[The information follows:]

We continue to believe that continuation of pay demo beyond its scheduled termination is not warranted. The current staffing situation is markedly different than when the project was implemented in 1989. Since then the controller work force (CWF) has moved from a period of rapid growth to one of maintaining a stable work force. The number of full-performance-level controllers is up, and attrition rates are at historically low levels. Over 80 percent of controllers are not eligible to retire until after 2001. New pay incentive such as the 8 percent interim geographic pay and the fiscal year 1994 locality pay have further reduced the need for pay demo. Finally we have a large applicant pool including over 4,800 former controllers, 150 available College Training Initiative (CTI) graduates, and 250 controllers available for placement per year as Level I towers are centralized. We recognize the personal hardship from any pay reduction, but cannot justify continuation of the pay demo program.

Mr. CARR. Doesn't locality pay reduce the need for additional "special pay" for controllers living in high cost areas? [The information follows:]

Yes, pay demo was the most widespread "special pay" that was provided to controllers in high-cost areas. Under pay demo, controllers received a 20 percent "special pay" in areas including: New York (Center, TRACON); Chicago (Tower, TRACON, Center); Los Angeles (Tower, TRACON, Coast); and Oakland (Bay TRACON).

In January 1991, the 8 percent geographic pay was implemented as the first step of locality pay. It was available to Federal employees, including controllers in the metropolitan areas of: New York; Los Angeles; and San Francisco/Oakland.

When geographic pay coincided with pay demo facilities, the 20 percent pay demo was reduced by the amount of the geographic pay. After geographic pay was started, only the Chicago area continued to receive the full 20 percent pay demo.

In fiscal year (FY) 1994, the first nationwide locality pay went into effect. It was paid to areas that were not receiving the larger 8 percent geographic pay. Subsequently, the 20 percent pay demo in the Chicago area was adjusted down in an amount equal to their area locality pay.

Geographic and locality pay when fully implemented is designed to reduce the gap between Federal and private sector wages and to increase pay in high-cost of living areas. It will reduce the need for "special pay" which is why the FAA is proposing to allow pay demo to expire in FY 1994 as scheduled.

PAY DEMONSTRATION PROGRAM VS. PCS MOVES

Mr. CARR. How much funding would be needed to continue this program in fiscal year 1995, and if such funding were available, wouldn't it be more effective to use it for permanent change of stations moves, to address staffing inconsistencies nationwide, rather than raising the pay of a few controllers at a select few facilities? [The information follows:]

Continuation of the pay demonstration program in fiscal year 1995 would cost an additional \$21 million.

If such funding were available, it could be used more effectively for permanent change of station moves. Permanent change of station resources have decreased significantly in the past few years. We strongly urge that any additional resources be devoted to rebuilding adequate funding for permanent change of station levels. As the agency reduces staffing to meet the administration's goal to streamline government, staffing imbalances will occur. An additional \$21 million for permanent change of station moves would almost double the number of moves the agency could make in fiscal year 1995, which would still be 49 less than the number of moves we made in fiscal year 1993. Being able to fund additional permanent change of station moves will be critical to ensuring that the agency is able to keep the right people with the right skills in the right places.

Furthermore, the pay demonstration program is simply no longer needed due to the changing work environment, availability of applicants, and new personnel flexibilities. Although it helped increase staffing levels, improve experience levels, and reduce turnover at the selected facilities, it did so at a high cost and raised concerns of equity by employees. The increased staffing during the pay demonstration project should be caveated with the change in general economic conditions and the resultant government-wide low turnover and a leveling off of aviation activity as noted in the Office of Personnel Management's evaluation of the project.

CONTRACT TOWER PROGRAM

Mr. CARR. Last year, the Congress directed the FAA to begin a multi-year effort to streamline its low activity tower operations. This includes the decommissioning of "mothballed" towers as well as those not meeting air traffic criteria, and contracting out the remainder of the 112 low activity, for example, level-1 control towers. Does the FAA still support this program?

[The information follows:]

Yes, the FAA still supports the program. The FAA expects to convert those FAA Level I VFR towers that meet benefit/cost (B/C) criteria to contract operation (as of June 1993, there were 99 FAA Level I VFR towers in this category) starting with 25 towers in fiscal year 1994. The FAA plans to convert 25 additional Level I VFR towers to contract operation in fiscal year 1995, fiscal year 1996, and the remaining towers in fiscal year 1997.

A plan to decommission those active FAA Level I VFR towers which do not meet B/C criteria is being developed. The FAA anticipates that it will begin the coordination process with affected airport sponsors, user groups, and congressional interests during the first quarter of FY 1995.

One of the tower locations that does not meet B/C criteria is Pago Pago. It is a nonradar approach control facility, which provides services to international and national air carriers on American Samoa, a U.S. possession. Pago Pago has unique air

traffic requirements and air traffic control services should continue in spite of not meeting criteria.

The FAA has taken action to decommission those temporarily closed ("mothballed") towers.

NOTE.—The total number of active FAA Level I towers may fluctuate as Level I locations are upgraded to Level II status when aircraft activity increases or Level II towers are downgraded to Level I status as aircraft activity decreases.

CONTRACT TOWER SAVINGS

Mr. CARR. Once fully implemented, how much will it save your operating budget on an annual basis?

[The information follows:]

Each operational FAA tower is staffed with an average of seven to eight FAA controllers and costs the air traffic program an average of \$450,000 per year to operate. In comparison, contract costs to operate individual towers nationally are estimated at approximately \$250,000 per tower per year.

The conversion of FAA Level I VFR towers to contract operation will require upfront costs to provide for the relocation of FAA controllers to other FAA facilities. As these controllers are relocated to other FAA facilities, the Agency's requirement to staff Level I VFR towers is eliminated, thereby causing the FAA to reduce its hiring requirement.

It will take an estimated 2 to 3 years before conversion costs are fully paid through employee attrition. At that point, the agency will save an average of \$200,000 for each facility converted or approximately \$20,000,000 per year.

TOWER STREAMLINING PROGRAM

Mr. CARR. I believe you surveyed over 1,000 of your employees at the towers being contracted out. Did they like the idea? If so, why do they support it?

[The information follows:]

The FAA Contract Tower (FCT) Program Employee Survey was developed by a Quality Through Partnership (QTP) workgroup composed of FAA management and National Air Traffic Controllers' Association (NATCA) representatives. It was distributed to all FAA Level I towers. 934 employees responded to the survey.

The employees were not asked about whether they supported the idea of contracting for air traffic services. However, they were asked to give their preference for which year their facility should be contracted (1994-97).

In the 25 facilities selected for contracting in 1994, 89 percent of the respondents expressed a preference for contracting this year.

UNION OPPOSITION TO TOWER STREAMLINING

Mr. CARR. We have heard from the Controllers' Union, which is opposed to contracting out. If the controllers want to move, and most would receive a pay raise, why would their union be opposed to it?

[The information follows:]

The primary objection expressed by the National Air Traffic Controllers' Association (NATCA) in our dialogue with them is a fear that contracting for air traffic services at FAA Level I towers is only the first step in a plan to eventually convert higher level facilities to contract operation as well.

ATC CORPORATION

Mr. CARR. The administration hasn't yet submitted its legislative proposal to restructure air traffic services to the Congress. However, the schedule was to have a draft submitted to the Secretary yesterday, April 18th. Has the drafting of this proposal gotten far enough for you to give us a preview of what we might expect?

[The information follows:]

The report of the Executive Oversight Committee to the Secretary of Transportation is being presented on April 28th. There will be a public issuance of this report by the Vice President on May 3rd. This will be followed up by a hearing of the Senate Appropriations Subcommittee on Transportation and Related Agencies on May 12th. A detailed legislative proposal will follow.

The report will recommend that a wholly-owned U.S. government corporation be established to operate, maintain and modernize the air traffic control system. The U.S. Air Traffic Services Corporation would operate as a not-for-profit organization and derive its support from fees levied on commercial aviation. Fees would be developed in concert with users and subject to disapproval by the Secretary of Transportation. Initially, such fees would replace an equivalent amount of the existing indirect aviation taxes so as not to change the financial burden on current users. In particular, there will be no changes in the financial support from general aviation or public users, such as the Department of Defense.

The corporation would have the ability to incur debt for capital improvements and modernization and would be free from the myriad of existing federal procurement and personnel rules. There would remain a core FAA that would continue to be responsible for aviation safety and security. As part of its safety regulation responsibility, the core FAA will provide safety oversight of the new Air Traffic Services Corporation.

The new corporation would be subject to a Board of Directors which would include the Secretaries of Transportation and Defense and members drawn from users of air traffic services.

The report that is to be released on May 3 will go into these and a number of other features in much greater detail.

STUDIES FOR CONVERSION TO ATC CORPORATION

Mr. CARR. Has the FAA conducted any studies over the past year or so to document the efficiency savings which we might achieve from conversion to a Federal corporation? If so, what were the specific findings?

[The information follows:]

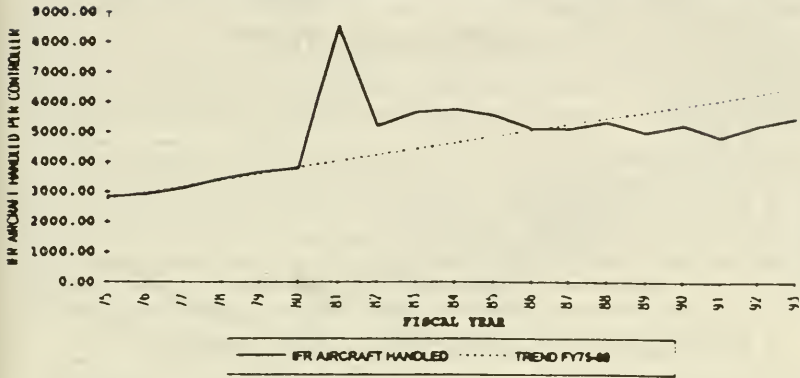
The FAA has undertaken extensive study and review of incorporation, including the efficiencies and savings that would likely be realized by conversion to a government corporation. Among other activities, this work involved review of prior studies and a review of optional models for the FAA. The final report should be available shortly.

CWF PRODUCTIVITY UNDER ATC CORPORATION

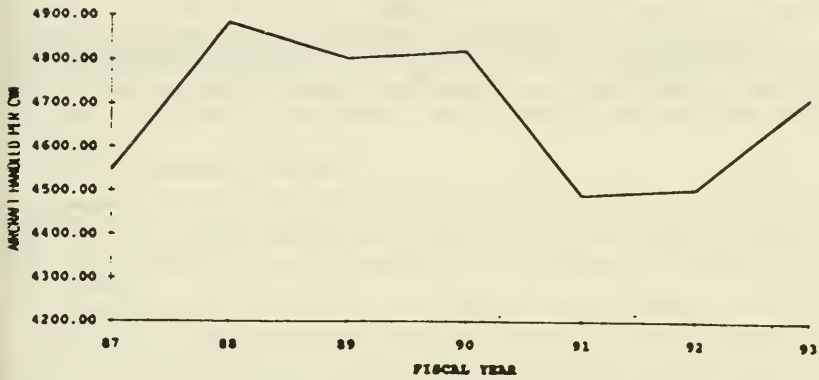
Mr. CARR. As the following FAA charts show, controller productivity was increasing steadily until the recession began about two years ago. Can you estimate the level of additional productivity we could expect to see resulting from a Federal corporate structure?

[The charts and information follow:]

PRODUCTIVITY PER CONTROLLER (ARTCC)

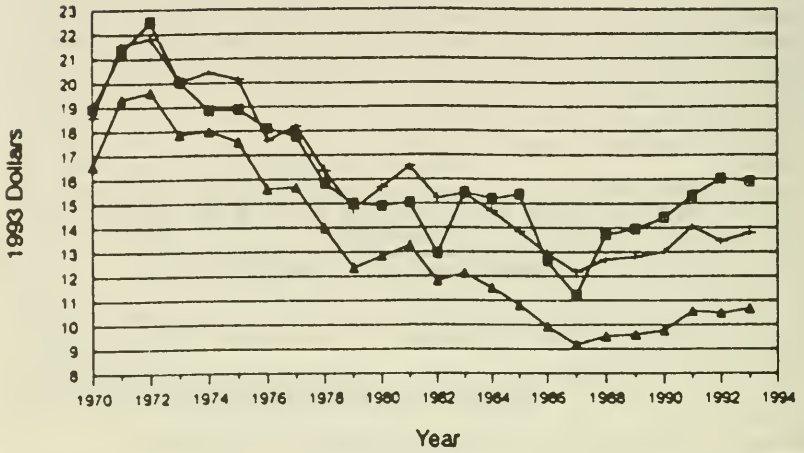


PRODUCTIVITY PER CWF (CENTERS)



FAA Cost per Passenger Moved

FYs 1970 through 1993



■ FULL BUDGET + AMORTIZED F&E, AIP * AMORTIZED F&E, no AIP

The Administration is enthusiastic that creating an ATC Corporation based on more businesslike principles will over time result in more efficient provision of modern air traffic control services. The corporation will provide a stable and more predictable source of revenue that can be leveraged to fund the high technology capital improvement program needed for a state-of-the-art air traffic control system. The Corporation will also be free to pursue industry "best practices" in the areas of procurement, personnel and corporate finance and budget. This will benefit commercial aviation, general aviation, and the traveling public, as well as employees of the corporation.

While we cannot precisely estimate the level of additional productivity, we have every expectation that productivity (defined as output per unit of input) should be enhanced with the Corporation's introduction and transition to the use of less restrictive personnel practices and more modern technology, as well as the continuation and enhancement of cooperative practices between labor and management. With enhanced technology and increased flexibility, we will be able to maintain and increase the ratio of aircraft to controllers despite the increasing density of traffic and increased complexity of the air traffic system.

PROPOSED CORPORATION'S GOVERNING STRUCTURE

Mr. CARR. Administration sources have stated that the corporation's governing structure would give ample power to general aviation interests to ensure that user fees charged to general aviation users would not increase. Yet the impetus for the Federal corporation was a desire to find ways of helping the commercial airline industry with its financial difficulties. This would indicate a board of directors influenced significantly by the major air carriers.

What type of governance structure can ensure that the corporation takes actions to help the domestic airline industry while not harming the Federal taxpayer, the general aviation flyer and the military?

[The information follows:]

From the outset the Executive Oversight Committee sought to provide economic benefits to the aviation industry, including the airlines, without sacrificing any other industry segment. With regard to general aviation, the legislation will propose that the corporation not levy any new fees or other charges on any element of general aviation.

The governance structure will be framed around an eleven member board of directors, composed of the Secretaries of Transportation and Defense, eight members appointed by the President and approved by the Senate, and a CEO chosen by the board. The appointed members will include representatives of commercial and non-commercial aviation, airports, unions and the business community, with several members representing the interests of commercial aviation because of the scope of operations by that segment of the industry.

STABILITY OF FAA FUNDING

Mr. CARR. One of the findings of the Airline Commission was that the FAA "is severely limited by the ebbs and flows of the Federal budget process." However, the FAA's operations appropriation has been rising faster than most commonly used measures of aviation activity. The GAO has calculated that, in constant dollars, Congress has increased funding for FAA's modernization program at an average annual rate of 21 percent since the beginning of the program in 1982—these data are shown in the charts below. Do you know where the "ebbs and flows" are to which the Airline Commission referred?

[The charts and information follow:]

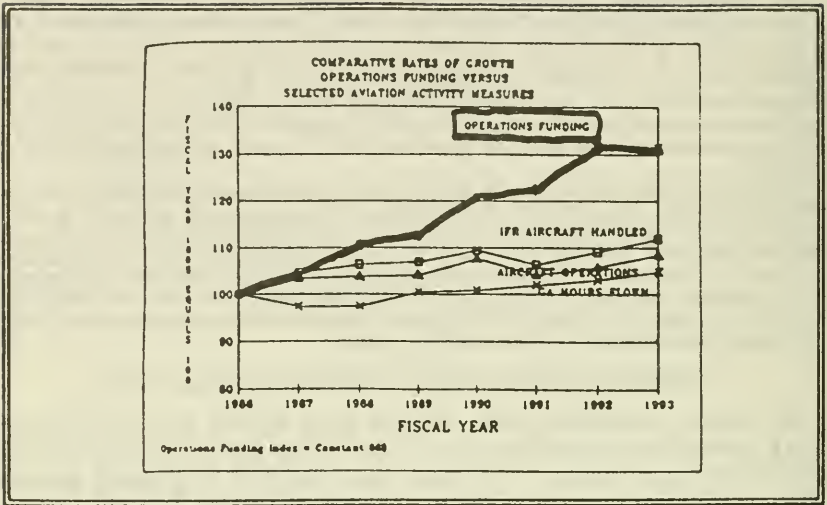
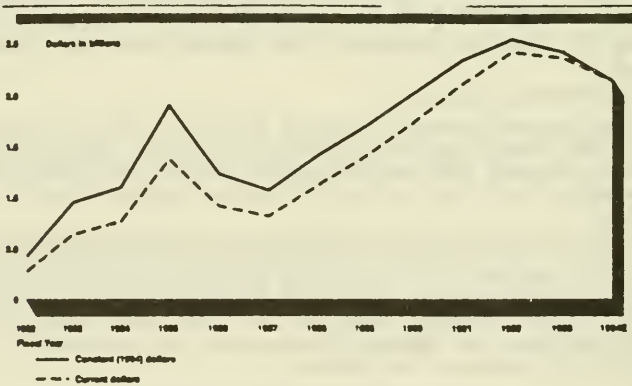


Figure 2.3: FAA Appropriations in Constant and Current Dollars, 1982-1994



Source: GAO's analysis of data from FAA's Budget Office

Until recently, funding for Operations and air traffic modernization had been rising faster than many measures of economic or aviation activity. As demonstrated on the charts however, air traffic modernization funding has been adversely affected by implementation of government-wide deficit reduction efforts associated with Gramm-Rudman-Hollings and its successor, the Budget Enforcement Act. Implementing these across-the-board spending initiatives has often caused postponement or deferral of funding for certain investment items and explains some of the ebbs and flows identified by the airline commission.

Operations funding in recent years has slowed to a rate below that of economic or aviation activity. It is instructive to bear in mind that Operations spending was greatly accelerated during the 1980's to allow for staff growth and changes in management practices following the 1981 controller strike. This phenomenon caused some skewing of the Operations growth rates during the 1980's. These rates have flattened out considerably in recent years.

FEDERAL PROCUREMENT PROCEDURES

Mr. CARR. The Airline Commission report stated that "Federal procurement procedures obstruct the ability to resolve urgent air transportation needs in a timely manner." What specific procedures or regulations are they talking about? Can you give us any concrete examples?

[The information follows:]

The problems and issues are systemic. One needs to step back from the current myriad of processes and procedures that are imbedded in the Federal procurement regulations and statutes. From that perspective, one could conclude that the statutes and regulations governing federal acquisition activities were adopted piecemeal and for sound reasons in each case. One could also conclude, however, that in the aggregate, they render the FAA's procurement processes rigid, time consuming, and hence burdensome.

For example, the Brooks Act authorizes the GSA Administrator to issue delegations of procurement authority (DPA) to federal agencies. In order to obtain a DPA, the FAA must prepare an agency procurement request (APR) for noncompetitive actions in excess of \$250,000, or competitive actions in excess of \$2,500,000, for automatic data processing equipment (ADPE) systems and services used for control of air traffic, and for ADPE that is an integral part of air traffic control systems or supporting telecommunications and navigational aid systems. FAA is in the unique position of having the specialized expertise in air traffic control functions to judge the need for such equipment as well as perform oversight on those acquisitions. An exemption to the Brooks Act, similar to the Department of Defense (DoD) exemption to the Warner amendment, would save significant procurement and program resources and eliminate burdensome paperwork requirement and numerous oversight levels. The exemption would allow the FAA the flexibility and improved timeliness in procuring systems and services that are integral to the safe command and control of the National Airspace System (NAS).

In addition, this Act makes FAA subject to GSBICA consideration of bid protests to federal information processing systems (FIPS) procurements. FAA has faced an average of 10 such protests annually in recent years and has successfully defended against over 90 percent of those protests. This process has delayed important acquisitions by several months because FAA has been unable to proceed with the procurements until resolution of the protests. A significant additional expenditure of human and financial resources occurs under these circumstances.

The Small Business Act encourages agencies to contract with small and small disadvantaged businesses. While the FAA does not object to this program, we do seek legislation that would allow the FAA to contract directly with the small and small disadvantaged businesses instead of contracting with the Small Business Administration (SBA) as the prime contractor. SBA participation in the contracting program has been an impediment to the acquisition process. The existing procedures are extremely burdensome, complex, redundant, unnecessary, and add an extensive amount of time to the acquisition process. The FAA is seeking authority similar to that granted to the DOD to make prime contract awards to small business concerns without going through SBA. FAA would seek to obtain SBA agreement to continue SBA determination of the eligibility of firms to receive awards, but otherwise authorize the FAA to contract directly with the firm.

FAA currently has authority to enter into leases for a term not to exceed 20 years. In effect, however, FAA is prohibited from using this authority because funds for leases are provided on an annual basis; in effect, leases contemplated to exceed one year are prohibited by the Anti-Deficiency Act. An estimated savings of 10 to 20 percent, or approximately \$5 to 10 million annually, would be realized by entering into firm term lease agreements. In addition to these

savings, FAA would also realize greater flexibility and improved timeliness in the property acquisition process, and would attract more offerors of space, resulting in greater competition.

The FAA seeks the authority granted to the DOD, the National Aeronautics and Space Administration (NASA), and the Coast Guard to award competitive contracts, with or without discussions as set forth in FAR 15.610(a)(4). This authority would enable FAA to award a contract without discussions with an offeror other than the one that proposed the lowest overall cost. Application of this authority would result in reducing the acquisition process by several months as well as reducing FAA's personnel resources because the process would be shortened through the elimination of several phases of the current process, including, for example, the receipt and evaluation of revised proposals, all negotiation discussions, and the receipt and evaluation of best and final offers. Vendors would also benefit for example, through lower bid and proposal costs, and attendant personnel costs reductions. Under this authority, the FAA would be able to take full advantage of best value method. Clearly, extending this authority to the FAA benefits both government and industry.

OMB Circular A109, Major Systems Acquisitions, makes it difficult to use the same contractor across the acquisition process because of competition requirements under this Act for the different phases of the acquisition process. The Act requires a design competition that creates, in some procurements, a phase that is not only costly to the FAA and the contractor, but lengthens the acquisition cycle with no added value to the procurement. The Act further requires FAA to keep its contractors at arm's length, thereby precluding open communications with contractors that, if allowed, would enable both parties to ensure that program objectives were understood and schedules met.

Other examples of burdensome requirements involve the Competition in Contracting Act, the Davis-Bacon Act, the Service Contracts Act, the Federal Acquisition Regulations, the Federal Information Resource Management Regulations, and the Federal Property Management Regulations. While the requirements imposed may not be show stoppers individually, in the aggregate they render FAA's procurement process rigid, time-consuming, and hence burdensome in ways that are beyond the agency's authority to remedy. In this context, granting the FAA the authority to foster greater flexibility in its procurement processes is needed to expedite the infusion of new technology to the nation's air traffic system.

MODERNIZATION PROGRAM DELAYS

Mr. CARR. Most of the delays in the modernization program, according to FAA and GAO witnesses in past years, have been the result of poor planning and management of development programs. All of these programs have been conducted under contract with corporations, such as IBM, Westinghouse, and Unisys. What in your view would a Federal corporation have done differently to manage these private contractors more effectively?

[The information follows:]

AAS is only one example. It is a good example where the issue of management can be raised. But many would argue that the range of procurement options available to management in overseeing the development and implementation of the large complex systems that FAA typically deals with is severely limited by a ponderous and inefficient bureaucratic process that is clearly recognized as an impediment to rapid fielding of new technology. The best solution is a government corporate charter that provides a total package of procurement reforms, one which would allow a corporation to use the best business practices available to industry, but denied to FAA. In a corporate environment, the FAA could deal with contractors more aggressively, limit competition to those vendors with a proven ability to perform throughout the history of a specific program, limit protests, write contracts with a flexibility to modify the scope or enhance requirements without competition, build partnerships with industry, use target costing and a host of other practices routinely used successfully in the private sector.

FINANCING ATC CORPORATION

Mr. CARR. In fiscal year 1994, the general fund paid about 50 percent of the FAA's operating costs, about \$2.3 billion. According to FAA data, if the Federal corporation charged each user of the airway system its fair share of operating costs, air carriers would be charged about 62 percent of the total, general aviation about 26 percent, and the public about 12 percent.

If this were in effect for fiscal year 1994, we would have appropriated \$550 million out of the general fund instead of \$2.3 billion. How would the corporation make up the \$1.7 billion difference without raising charges to the other users?

[The information follows:]

The FAA data you are referring to came from a 1991 econometric study that attributed costs to aviation groups based on aviation activity that measured the burden imposed by each group on the National Airway System. It allocated this burden to the total FAA budget including F&E, RE&D, and AIP in addition to Operations. The general fund share against this base would be about \$1.1 billion. That would still leave a difference of \$1.2 billion following your calculation.

There are several reasons that lead us to expect that the corporate proposal will entail a reduction in requirements for appropriated funds. We fully expect that issue will certainly be addressed when the Air Traffic Services Corporation report and legislative proposal are submitted to Congress later this spring.

CORPORATION AND BUDGET ENFORCEMENT ACT

Mr. CARR. Has the Administration decided whether its proposal will require a waiver of the Budget Enforcement Act?

[The information follows:]

Yes. There will need to be an adjustment to the Budget Enforcement Act. FAA spending is currently scored under the discretionary spending cap. FAA's Trust Fund revenue is currently scored as a mandatory revenue item. The proposal to create a corporation that is self-supporting and charges fees for its services will require a technical adjustment to the way FAA's spending and revenues are scored at present. The upcoming corporate legislative proposal will address this matter.

FLIGHT INSPECTIONS—FRONT ROYAL ACCIDENT

Mr. CARR. Last October 26, an FAA flight inspection aircraft crashed near Front Royal, Virginia, killing all three FAA crewmembers. In its assessment, the Safety Board raised serious concerns about the behavior of the pilot in command of this flight as well as the FAA's oversight of this program. They said "the performance of the flight crew raises such serious concerns the Safety Board believes the FAA should take immediate action to remedy." What were the specific concerns of the Safety Board?

[The information follows:]

On April 12, 1994, the NTSB adopted the accident report and probable cause of the N82 accident that occurred on October 26, 1993, in Front Royal, VA. The NTSB expressed concern that the FAA was not operating agency aircraft to the same regulatory standards and under the same level of surveillance that they require of non-government operations in the United States. How we organize, manage, and supervise the fleet operations, and how well we train crews and enforce performance standards are some of the areas the NTSB wants us to review.

FLIGHT INSPECTION SAFETY CONCERNS

Mr. CARR. What have you done to address their concerns?

[The information follows:]

The FAA concurs with the recommendations of the National Transportation Safety Board and has already taken a number of actions to ensure strong and effective management of the mission in accordance with the highest safety standards. These include:

- The Administrator issued an order on December 22, 1993, which directs that the FAA aircraft program will be operated in accordance with regulations that apply to airlines. A certification team has been formed and is working to accomplish this directive by July 31.
- Under the new order, the Flight Standards Service is now providing a surveillance and inspection program equal to that of an airline operation.
- A new oversight organization has been established to provide focus on aircraft operations. It is headed by an Aircraft Oversight Executive and is supported by a Director of Operations and a Director of Maintenance.
- Key changes in organizational and supervisory structures have been implemented. To prevent breakdowns in communications and enhance management effectiveness, pilots-in-command and seconds-in-command will now report to the same supervisor.
- The Senior Flight Safety Officer has been elevated to report directly to the Director of Aviation System Standards.
- A crew resource management training program has been implemented. The first training session took place on March 1. All training will be completed by July 31. The training includes interpersonal relations, conflict resolution, and emphasis on processes to alert managers of problem situations.
- The FAA has issued a change to all flight operations manuals to require that IFR flight plans be used to the maximum extent possible
- A check airman and flight evaluation program has been developed and will be implemented by May 1.

On April 21, the NTSB issued eight more safety recommendations related to this accident. The FAA concurs with the intent of these new recommendations, and is taking immediate steps to address each issue.

PILOT REPORT STRUCTURE

Mr. CARR. Why did you have pilots in command and seconds in command, copilots, reporting to different supervisors in the flight inspection field offices, and has this been changed?

[The information follows:]

The described structure is the implementation of the most effective organization (MEO) which resulted from a mid-1980's OMB Circular A-76 audit. This audit recommended that seconds-in-command (SIC) be assigned instrument flight procedures development duties when not in a flying status. Because more of the SIC duty time is in a non-flying status, they were assigned to supervisors in the procedures section.

The FAA has taken action to place all flight inspection crew members under a common supervisor. Estimated completion date is September 30, 1994.

FLIGHT INSPECTION FIELD OFFICE CONSOLIDATION

Mr. CARR. Last year you conducted the "AVN Mission Study," which looked at efficiencies to be gained from consolidation of your flight inspection field offices. What were the findings of this study and how are they reflected in your fiscal year 1995 budget?

[The information follows:]

The AVN Mission Study, dated January 26, 1994, recommended closure of the International Flight Inspection Offices (IFIO) in Tokyo and Frankfurt, establishment of a single IFIO in the continental United States, and centralization of the instrument flight procedures development and flight scheduling. The FAA Administrator approved the closure of the Tokyo and Frankfurt offices and establishment of a single IFIO in Oklahoma City. We are in the process of developing an implementation schedule for each of these changes. The full level of efficiencies will not be achieved until after FY 1995 when implementation is complete. The FY 1995 budget was not increased to reflect the implementation costs.

CENTRALIZED SCHEDULING SYSTEM

Mr. CARR. One of the findings was that a central scheduling system might be able to save as much as 5 percent of your flight hours. Do you have any plans to follow up on this finding, by conducting a proof of concept in one or more regions?

[The information follows:]

Centralized scheduling is currently under technical review to determine the most efficient method to establish aircraft flight following and communications capabilities. Initially, aircraft flight following will be tested with two flight inspection area offices to establish procedures and limitations. After establishment of technical requirements for communications, a limited proof of concept is planned with three flight inspection aircraft.

CONSOLIDATION EFFICIENCIES

Mr. CARR. You were investigating the potential efficiencies of closing your offices in Frankfurt, Tokyo and Atlanta, and conducting that work out of other offices in the United States. The two offices which could handle this additional workload are Oklahoma City, Oklahoma and Battle Creek, Michigan.

As you probably know, I would like to see this extra work in Battle Creek if it makes good sense for the agency. What did you find in this regard?

[The information follows:]

An extensive study to compare conducting the overseas mission from Battle Creek versus Oklahoma City was completed. Based on operational requirements, personnel, training availability, and existing facilities it was determined establishing the international office in Oklahoma City, Oklahoma, was the most cost effective option. Overall, one-time and recurring Battle Creek costs significantly exceed Oklahoma City's costs.

DUATS

Mr. CARR. Last year, the FAA proposed to save \$11,000,000 in costs by discontinuing its financial support for the direct user ac-

cess terminal, DUATS, program. Congress ultimately provided \$9,000,000 to continue the program in fiscal year 1994. Once again, your fiscal year 1995 budget does not include funds to continue DUATS. Why not?

[The information follows:]

The agency's position is not to fund programs which duplicate services already available in the private sector, which DUATS does. Pilots can access vendors utilizing 1-900 numbers for computerized pilot weather briefings for an average charge of \$1.10 per activity. Since DUAT services are only available to users with access to computers, the practice of subsidizing some general aviation pilots and not others is inconsistent with the FAA's policy to provide pre-flight services to all pilots. Flight service stations provide pilot weather briefings via a national toll free 1-800 number that is available to all pilots. DUATS would only provide services which are already available to the users.

RESTRUCTURING DUATS

Mr. CARR. In last year's conference report, we directed the FAA to work with the GAO in a report on the potential for a restructured DUATS program which would use new technology and be more efficient than current services. What are your views of the potential to restructure DUATS in a viable, more affordable program?

[The information follows:]

The FAA has met with GAO to provide information for the Congressionally mandated study on the DUATS program. GAO is planning to review the results of the R&D Advisory Committee study, led by former Administrator, Donald Engen, in conjunction with their efforts.

DUATS—SURVEY OF USE

Mr. CARR. In last year's hearing, the Acting Administrator told us a little less than three quarters of the people who use DUATS also call a flight service station, (page 378). In an answer for the record, the percentage calling an FSS was stated as 85 percent (page 634). Did the FAA conduct a survey to make that determination? If not, how was the information derived?

[The information follows:]

A survey was conducted in 1992 by the Data Transfer Corporation (DTC), one of the two DUATS vendors. There were 10,501 responses to the survey that indicated that 32 percent of the pilots routinely call an FSS in addition to using DUATS and 53 percent "sometimes" call depending on the weather conditions. A national survey by the FAA has not been conducted.

DUATS—IMPACT OF FSS STAFFING

Mr. CARR. If DUATS is terminated, wouldn't the FAA need to budget for the additional workload to be handled at its flight service stations, and if so, is that assumed in your fiscal year 1995 request?

[The information follows:]

Flight Service Stations (FSS) and Automated Flight Service Stations (AFSS) currently have enough staff to handle the additional workload if DUATS is terminated. No additional FSS or AFSS staff are requested in the FY 1995 budget.

PREVENTABLE & UNPREVENTABLE DELAYS

Mr. CARR. The magnitude of air traffic delays are one measure of the efficiency of the airway system. However, the data can be misinterpreted, since not all air traffic delays can be mitigated by the FAA. For example, approximately 65 percent of all "air traffic" delays are caused by bad weather, which the FAA can do little to control. Sometimes we read in the media, though, of the billions of dollars the airlines lose each year due to "air traffic control delays,"

and these losses are sometimes attributed to poor management and ineffective technology at the FAA.

Mr. Pozesky said in last year's hearing that maybe we should begin drawing a distinction between "preventable" and "unpreventable" delays. Have you begun making that distinction in your delay statistics?

If not, what additional data needs to be collected to begin that practice?

[The information follows:]

The delays over 15 minutes are reported by cause (weather, terminal volume, center volume, equipment, closed runway, and other). The weather component could be considered "unpreventable" and all other reported causes could be considered "preventable". No additional data are being collected at this time to allow for any further distinction.

The context of last year's hearing discussion was that FAA is concentrating its technology on preventable delays versus unpreventable delays. As part of the agency's strategic plan in 1994, we will work with the industry to get agreement on a common definition and measurement of delays.

IMPROVEMENTS IN DELAY MEASUREMENTS

Mr. CARR. Last year, the Acting Administrator acknowledged, "I don't think anyone is satisfied with the way we measure delays" (page 510). Have you made any other improvements in how delays are measured and reported over the past year?

[The information follows:]

Methodology has been developed and one month of data processed to compute delays on a detailed basis. This procedure provides for the capability to measure delays by phase of flight (gate hold, taxi out, airborne, and taxi in) for all delays—not just for delays greater than 15 minutes. Plans for the next year are to process all of 1993 data and to review the methodology and results with airlines, airports, and appropriate associations. As part of the agency's strategic plan in 1994, we will work with the industry to get agreement on a common definition and measurement of delays.

TAXI-IN DELAYS

Mr. CARR. It would seem that gate delays, taxi-out delays, and airborne delays could be considered related to air traffic congestion, and therefore called "air traffic delays." However, taxi-in delays are almost entirely related to airport and airline operations. When the airlines report "total delays" to you, don't they include in those numbers that portion of the delay which occurs during the taxi-in phase?

[The information follows:]

That is correct. Total delay includes delays from all four phases.

FAA ACCESS TO AIRLINE DELAY DATA

Mr. CARR. I understand that the airlines collect much more precise data on delays than the FAA does. For example, they track delays not only by airport but by phase of flight and carrier.

The following chart, from October 1992, shows a graphic comparison of the difference in delay reporting between FAA and the airlines' internal system.

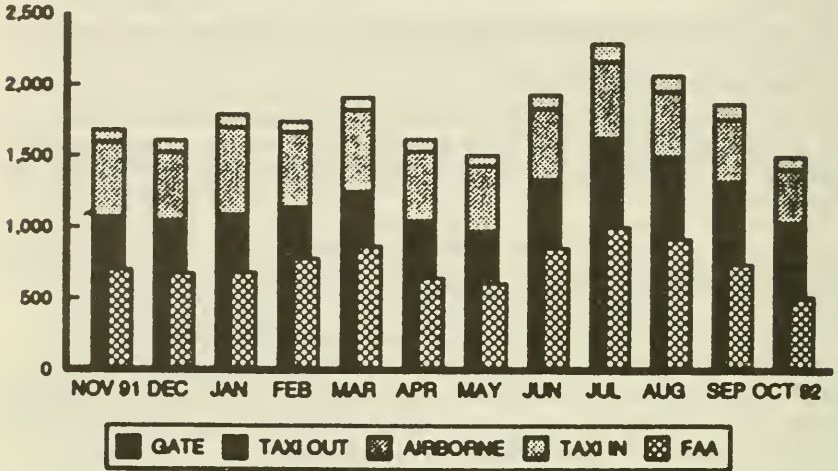
Even though the airline data is proprietary, it would seem to me that you could work with the airlines to have them share this data.

As I indicated in last year's hearings, this would allow travelers to compare airports, and make informed decisions to use those airports with the best efficiency ratings regarding preventable delay. If that data were available for analysis by the FAA, wouldn't it enable a more precise measurement of the delay problem in this country?

[The chart and information follow:]

**AVERAGE DAILY DELAYS
COMPARISON OF FAA AND AIRLINE REPORTED DELAYS
(15 Minutes or Greater)**

DAILY DELAYS



Individual carriers do have more precise data that allows for computation of delay by phase of flight. In fact, the FAA has coordinated with the Department of Transportation to modify the Airline Service Quality Program (ASQP) so that the carriers will provide additional data which will allow for the computation of actual times in each phase of flight. In addition, the FAA is incorporating in its delay estimate data on aircraft movement time as provided by aircraft to their operation departments. This information can then be used to compute delays and allow for more precise analysis of the delay problem.

FINANCIAL IMPACT OF DELAYS

Mr. CARR. Industry and FAA data indicate that delays have been decreasing. Since 1991, total system delay was down almost 6 percent in 1992, and flights delayed greater than 15 minutes were down almost 24 percent in 1991. It was during this time period that the domestic airline industry suffered some of its greatest financial losses.

In other words, losses were going up even as delays were decreasing. Wouldn't this indicate that air traffic delays aren't a controlling factor behind the financial success of the domestic airline industry?

[The information follows:]

The cost of delay is only one factor behind the financial losses incurred by the commercial airline industry. During the period from 1990 thru 1993, other factors were extremely important for the industry. An extended economic recession over much of the period, coupled with rapidly escalating fuel prices, hit the airlines very hard, especially since new equipment deliveries peaked just as traffic softened. The Gulf War in 1991 had a devastating effect on international travel, and a serious effect on domestic travel. In 1992, fare wars ravaged most of the industry. The fare wars were the most visible effect of the over capacity and weak traffic which affected the industry. If delay had worsened during this period, the financial effects on the airline industry would have been even greater losses.

AIR TRAFFIC DELAYS

Mr. CARR. The graph below is from the FAA's 1993 Aviation System Capacity Plan and indicates that 65 percent of the air traffic delays are due to bad weather and another 26 percent are due to inadequate terminal air traffic volume. By comparison, no significant delay was attributable to en route sector problems.

It would seem that the FAA should, therefore, be placing a priority on the development of systems which expand terminal airspace capacity and raise capacity in bad weather. Has the FAA made that a distinct priority, and if so, what programs are being emphasized?

[The chart and information follow:]

FY91

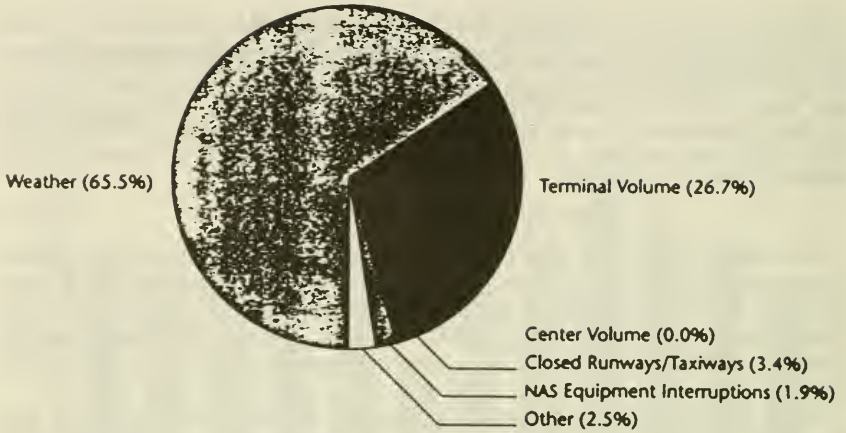


Figure 1-7. Primary Cause of Delay of 15 Minutes or More in FY90 and FY91

Source: Air Traffic Operations Management System (ATOMS) Data

The FAA has an extensive program to increase capacity and reduce delays in the en route and terminal airspace and the airport environments. It is not necessarily a terminal airspace problem. In a hub-and-spoke system, there is insufficient runway and airport capacity at some of the major hub airports during instrument meteorological conditions (IMC) and/or during peak operational periods. The FAA has made it a distinct priority to increase IMC capacity to nearly that of Visual Flight Rules (VFR) capacity. Where this included the requirement for the expansion of the terminal airspace, it is expanded and the terminal airspace modified or redesigned.

Case in point, the Dallas/Fort Worth Metroplex Plan recommended the construction of two Airport Traffic Control Towers, the relocation of each of the four corner posts 30 miles farther out, and the installation of two major navigational fixes. This expansion of the terminal airspace was to accommodate the increased runway and airport capacity for the traffic streams to the two new runways and also for future aviation demand.

Other specific programs are outlined in the FAA's Aviation System Capacity Plan. These include programs for improved airport design, the implementation of new technology and air traffic procedures, enhanced weather reporting capability, and the redesign of airspace. However, major capacity enhancements are a result of new traffic streams to existing runways, new runways, and new airports.

Specific Programs:

- The Capacity Design Team Program is one of the major drivers for runway, airport, and terminal airspace capacity enhancement and delay reduction. The teams are made up of representatives from the FAA, airport operators, air carriers, the military, and other aviation industry and local community groups. They analyze alternative concepts and configurations for improving individual airport and terminal airspace capacity, recommend improvements, and measure delay savings in terms of potential aircraft operating costs. The design teams produce the Agency's most comprehensive and coordinated planning effort
- Programs for instrument approach procedures initiatives include the reduction of wake vortex restrictions, improved longitudinal separation on wet runways, parallel instrument approaches, converging approaches simultaneous Instrument Landing Systems (ILS) and Localizer Directional Aid (LDA) approaches, flight management system transition to existing approaches, and independent and dependent approaches for multiple parallel runways.
- Programs for airspace development include Airspace Capacity Studies that are a joint effort among the various FAA Headquarters and Regional Offices to conduct simulation modeling. Typically, the Regional Office's Air Traffic Division develops the alternatives that will be tested in the simulation runs. Sometimes these studies include community involvement and FAA's responsiveness to community-developed alternatives. Most of the studies take a "systematic" approach, examining the proposed alternatives in an Air Route Traffic Control Center-wide context.

- Programs for capacity improvement using new technology focus on airport surface capacity; terminal airspace capacity, which includes the Precision Runway Monitor (PRM), traffic alert and collision avoidance system (TCAS)/Cockpit Display of Traffic Information (CDTI) for separation assistance, and Global Positioning System (GPS); en route airspace capacity, which includes the data link and satellite navigation; and system planning, integration, and control technology which includes all the simulation and modeling capabilities and the vertical flight program.
- The Airport Improvement Program also has a focus on capacity. There are new runways planned at 62 of the 100 busiest air carrier airports; 17 of the 23 delay-problem airports are either constructing or planning the construction of new runways or extensions; and 16 replacement or supplemental airports are either being studied, planned or under construction. However, in a hub-and-spoke system the future aviation demand requirements will not be accommodated for certain airports on the east and west coasts and the Chicago area without additional runway construction. Airfield delays will continue unless new airports or parallel air carrier and commuter runways with dual and triple simultaneous Instrument Flight Rules (IFR) approach capabilities are constructed.

REDUCING AIRLINE DELAYS—AAS

Mr. CARR. Wouldn't it also indicate a low priority at least when it comes to reducing airline delays for the en-route portion of AAS? [The information follows:]

The need for AAS is based not only on the need to reduce airline delays but also to replace aging equipment in the field, the maintenance costs associated with the aging equipment, and provide a platform for a new functionality that will provide benefits to the user and to the FAA.

We place a high priority on providing benefits to the airlines, especially in reducing delays. Our Automated En Route Air Traffic Control (AREA) program has been structured to provide phase benefits starting as early as possible. We have several teams looking at all aspects of the program, including AERA, which will be an important consideration in our final recommendations.

AIR TRAFFIC DELAYS

Mr. CARR. The airlines have proposed a number of revisions to current air traffic procedures and restrictions which, in their estimation, would save millions of dollars in fuel. Have you reviewed their proposals?

[The information follows:]

Yes. In fact, FAA air traffic operations personnel meet monthly with airline representatives to develop and review measures to improve the efficiency of the National Airspace System. As a result of this interaction, a number of highly cost-effective programs have been developed and implemented within the air traffic control system.

For example, the National Route Program (NRP), which permits users to file and fly more fuel-efficient routes than those published as preferred routes by the FAA, is resulting in substantial fuel savings for airlines. The Air Transport Association and the FAA estimate that airlines will save over \$10 million this year through the NRP.

Another initiative developed jointly by the FAA and air transport industry is "limited airborne holding", which is intended to permit aircraft to depart with less ground delay and to absorb necessary delays near the destination terminal. In the few months since its inception, this program has already resulted in an average reduction of 2.1 minutes in flight times for American Airlines flights destined to Houston, which is the first airport to test this measure.

PORTABLE ELECTRONIC DEVICES

Mr. CARR. As you know, this committee directed the FAA to conduct, through the Radio Technical Commission on Aeronautics (RTCA), a comprehensive test of portable electronic devices to determine whether the electromagnetic interference from these devices poses a safety hazard to aircraft operation.

The committee's report directing this test was dated July 18, 1991. A final report was to be submitted to the Congress by October 1, 1993. It is now over two and a half years since we directed that study.

Why hasn't it been completed?

[The information follows:]

Congress directed the FAA to conduct, through RTCA, a comprehensive test of portable electronic devices (PED) to determine whether the electromagnetic interference from these devices poses a safety hazard to aircraft operation. Through the advisory committee process, the RTCA established a Special Committee, SC-177. Committee members are Government and industry specialists who are donating time and resources in developing test criteria/guidance for PEDs. This process involves the electronic industry in addition to the aviation industry. The tests require a cross section of PEDs with different characteristics, test equipment, test sites, specialists from Government and industry, and air carrier aircraft for real-time testing. Committee members met with Delta and American Airlines to establish an aircraft

test schedule. The Committee expects to complete its report in mid-July 1994. We will do all we can to expedite the work of the Committee.

Mr. CARR. According to the FAA, the agency did not even request the RTCA to do the study until May 1992, almost a year after we directed the report. How can you explain what appears an inexcusable delay?

[The information follows:]

FAA specialists were assigned the PED project in December of 1991, and the first contact with RTCA concerning PED was in January 1992. The first official meeting with RTCA was in March 1992, with subsequent meetings in the first half of 1992 to define the structure and tasks of the Special Committee.

PORTABLE ELECTRONIC DEVICES—TESTING

Mr. CARR. The Committee's 1991 report says the following: "The Committee directs the FAA to conduct tests that will examine the effects of recently devised PEDs, multiples of similar and dissimilar PEDs, and intentional electromagnetic radiators—the tests will concentrate on air carrier aircraft. How much actual testing has been done, and how much of that was on the ground and how much airborne?"

[The information follows:]

Tests were conducted on a representative number of PEDs, and a report was presented to the RTCA Committee. Ground tests were conducted in April on the FAA's Boeing 727 and provided to the RTCA Committee. No airborne tests have been conducted to date. A Committee member met with airline operators in March to schedule further tests with other types of aircraft. The Committee has been tasked to define the extent of airborne testing we will be able to carry out.

PORTABLE ELECTRONIC DEVICES—MODELING

Mr. CARR. In the December 1993 interim report to this committee, the FAA stated that "funding for computer modeling and in aircraft testing, obtaining test equipment and personnel resources, and satisfying logistical considerations are potential problems—these issues contain potential sources for delay." Would you describe these problems in more detail?

[The information follows:]

Funding is no longer a concern. Funding has been allocated for computer modeling. Ground tests were conducted on the FAA's Boeing 727 and provided to the RTCA Committee.

PORTABLE ELECTRONIC DEVICES

Mr. CARR. In August 1993, the FAA issued an advisory circular prohibiting the operation of any PED during takeoff and landing phases, as well as prohibiting the operation of any intentional transmitter, including cellular phones, at any time on board an aircraft, unless otherwise authorized. This includes the use of cellular phones while sitting at the gate.

The FAA has also refused to change its regulation that individual airlines, and even pilots in command, may set their own policies on the spot. Yet in your December 1993 letter to me, you state: "We do not have any evidence to indicate that portable electronic devices interfere with aircraft electronic systems, although the theoretical possibility that they could does exist."

Aren't we giving in to hysteria here, by restricting the use of devices with no basis in empirical evidence?

[The information follows:]

The cellular phone is an intentional radiator (transmitter) which is prohibited by the FCC from operation in an aircraft while in flight. Although conventional test methods did not substantiate PED interference, we do not believe the tests were conclusive, and we are continuing efforts to empirically support or refute our hypothesis. Until we have conclusive evidence, we believe it is better to be cautious and restrict the use of PED's.

PORTABLE ELECTRONIC DEVICES—STUDIES

Mr. CARR. In a message to travelers in its July 1993 magazine, American Airlines President Bob Crandall wrote: "The jury is out on whether other devices small computers, compact disc players, hand-held video games among them, have similar effects. Although scientific studies have been inconclusive, there is mounting anecdotal evidence of sporadic and poorly understood problems."

Yet your statement, Mr. Hinson, is that, "We do not have any evidence that PEDs interfere with aircraft electronic systems." Are you still reading the same studies as Mr. Crandall?

[The information follows:]

Efforts to duplicate the alleged PED interference could not be duplicated even with PED used in aircraft at the time of the incident. We have not seen any data to substantiate claims of alleged interference, though such a possibility cannot be ruled out.

PORTABLE ELECTRONIC DEVICES INTERFERENCES

Mr. CARR. We hear a lot about the anecdotes from pilots alleging interference from PEDS. What data is the FAA collecting, if any, on these anecdotes?

[The information follows:]

Along with reports that are given directly to the RTCA Committee, the FAA receives reports from the Air Transport Association and the NASA Aviation Safety Reporting System (ASRS). We review each of them, but have found no cause to change the course of the RTCA effort yet.

REGULATORY BURDEN ON THE AIRLINE INDUSTRY

Mr. CARR. As a "Reinventing Government" initiative, the FAA recently solicited the views of airlines on ways the agency could reduce the regulatory burden on the industry. What were some of the major recommendations coming out of that effort, and what is your schedule for reviewing them?

[The information follows:]

FAA has received more than 160 comments on ways to reduce the regulatory burden. Based on a preliminary review, the following issues appear to be of significant concern: the costs to the industry of airport access control systems; the duration of third class medical certificates, (which general aviation supports extending from 2 to 4 years); requirements in the proposed aging aircraft rule (several airlines would like to see modifications); and the drug testing requirement, (airlines would like to see random testing reduced to 10 percent annually from the current 50 percent). The Agency's tentative review schedule currently targets early August 1994 to publish a disposition of comments in the Federal Register.

Mr. CARR. In particular, one airline suggested that relaxing scheduled installation dates for modifying the TCAS system could save over \$7 billion worldwide. As I understand it, the FAA is mandating that all aircraft be retrofitted with TCAS improvements by a certain date, regardless of whether they are scheduled to enter a maintenance period by that time.

This requires airlines to take aircraft out of revenue service and fly them to a maintenance facility for the sole purpose of having the unit upgraded. In fact, at least one TCAS supplier says a one year extension is needed.

Wouldn't it make more sense to simply require that at the next maintenance availability when the aircraft is out of revenue service anyway that TCAS be upgraded?

[The information follows:]

The aircraft does not need to be taken out of service. In some cases, the modification can be accomplished on the aircraft with an automatic data loader through an extra electrical connector on the TCAS box. Other installations only require the TCAS box to be removed and returned to a service center. Both efforts can be accomplished at the gate. We are aware of the unique time constraints faced by one manufacturer because of design considerations they implemented. We have had discussions with the manufacturers to explore ways to assist them in resolving this difficulty. We will continue to work with industry to eliminate costs associated with late modifications, and will ensure that such costs are not incurred by airlines that make every reasonable good faith effort to comply with the current schedule.

TCAS VENDORS

Mr. CARR. Do all the TCAS vendors even have enough capability to retrofit all commercial aircraft by the date specified?

[The information follows:]

One manufacturer may be required to provide overtime or additional workshifts to accommodate the airline schedule. Two other TCAS manufacturers have the capability. We are working with the single manufacturer experiencing difficulty to do all that is possible to facilitate its ability to meet the schedule as defined in the Airworthiness Directive AD 94-01-05 effective February 4, 1994.

COST EFFECTIVENESS OF ALCOHOL TESTING

Mr. CARR. DOT estimates that its recently announced final rule mandating alcohol testing of safety sensitive employees will cost the aviation industry between \$178 million and \$254 million over a 10-year period, but these costs will be offset by benefits of between \$292 million and \$375 million. Is this one of the mandates that the airlines have a problem with, and if so, how do they contest the Department's view that the regulation is cost effective?

[The information follows:]

In comments provided to the rulemaking document and in testimony presented at public hearings, the aviation industry expressed concern about the alcohol misuse prevention program. The aviation industry is concerned with the addition of any new safety regulations and the contribution which they will make to the cumulative burden of existing regulations. Comments to the rulemaking document from the aviation industry indicate that employers believe the true cost of the rule has been understated because, among other things, they believe the cost and number of the evidentiary breath testing devices which must be used has been underestimated and the extent to which testing will result in system delays and increased crew scheduling costs has not been adequately considered. Commentors have also expressed concerns that pre-employment alcohol testing will be expensive but of limited utility. Other commentors have suggested that the rate of random testing should be minimized with some suggestions that the rate of random alcohol and drug testing not exceed 10 percent on a combined basis.

RULEMAKING COST-BENEFIT ANALYSIS

Mr. CARR. It has been suggested that FAA should also review the benefits and costs of pending rules as well as advisory circulars and airworthiness directives. Do you plan to review these also? If not, why not?

[The information follows:]

FAA conducts a cost-benefit analysis for all rulemaking projects. For airworthiness directives (AD), FAA issues a cost statement when the costs of implementation is below \$100 million. If the costs are above that amount, FAA publishes an economic impact analysis. A cost review is not conducted for emergency AD's. A cost review is not conducted for advisory circulars (AC) since the information published in them is not obligatory.

HUMAN FACTORS IN AVIATION SAFETY

Mr. CARR. In the November 1993 issue of "Air Line Pilot" magazine, a pilot wrote the following in a letter to the editor: "The typical controller works a day shift or two, then a swing shift or two, then a midnight shift or two, for a total of five shifts. Twice during a set of five shifts on duty, the person gets an eight hour break during which the maximum amount of sleep that can be expected is five hours—eliminating the rapid shift rotation and replacing it with work schedules that rotate no more often than every two weeks could dramatically reduce controller errors—as a pilot listening to controllers, I have heard too many controllers with fatigue in their voices and have observed too many simple mistakes."

It would seem that the way you rotate your air traffic controllers from shift to shift is about 180 degrees from what you should be doing, if you were taking human factors into consideration. Why don't you change this practice, to raise the alertness and effectiveness of your controllers?

[The information follows:]

There is considerable variation in shift scheduling practices at all air traffic facilities. These schedules are negotiated at the local level. The most popular schedule with the employees is the 2-2-1 schedule (2 evenings, 2 days, 1 midnight). Civil Aeromedical Institute (CAMI) research indicates that the 2-2-1 is preferred because of the longer break between work weeks (80 hours). More recent data from an en route facility indicates that a higher percentage of controllers prefer a rotating schedule versus straight days.

The FAA Office of Aviation Medicine, CAMI is currently conducting research into the effects of rotating shifts. Recognizing that the direction of the shift rotation for the 2-2-1 schedule is not consistent with recommendations from some shift work researchers, the recent CAMI studies were specifically designed to evaluate the effects of the schedule changes on circadian rhythm, sleep, performance and other physiological indices. Data was collected both in the laboratory and field settings. Four studies comprise the current program (1) Shift Work, Age and Performance; (2) 10-Hour Work Schedule; (3) Sleepiness on the Night Shift; and (4) Napping on the Night Shift. The completion date of these studies is May 1995. It would be premature to impose changes in facility scheduling practices that were negotiated with the bargaining units at the local level.

CWF ROTATIONAL PRACTICES—NTSB RECOMMENDATIONS

Mr. CARR. Has the Safety Board ever taken issue with your rotational practices for controllers?

[The information follows:]

There has been only one safety recommendation from the National Transportation Safety Board (NTSB) to the Federal Aviation Administration concerning rotation practices of air traffic controllers. This recommendation was site-specific to the Salt Lake City, Utah, ATC facility subsequent to a non-fatal accident involving a Gates Learjet on December 3, 1969. On May 18, 1973, the NTSB classified this recommendation as "Closed, Acceptable Action."

HUMAN FACTORS RESEARCH FUNDING

Mr. CARR. The Congress has expressed its clear desire that you should be increasing your emphasis on human factors research. Last year, we reallocated your priorities and added \$2 million for human factors, to make that a clear signal.

It disappoints me, then, to see that your fiscal year 1995 budget proposal cuts human factors research 13.4 percent, from \$29,256,000 to \$25,329,000. This is particularly curious in an R&D budget which you propose to increase.

Why have you decided to cut human factors research so significantly?

[The information follows:]

FAA has chosen to allocate a significant portion of our applied human factors research funding directly to those projects performing the research. For example, we have increased the scope of our air traffic control human factors program by funding research from our Data Link, Terminal Air Traffic Control Automation, and Airport Surface Traffic Automation programs. The net result is that total agency resources for human factors research have been maintained.

HUMAN FACTORS RESEARCH PRIORITIES

Mr. CARR. According to the GAO, between 1983 and 1992, 68.9 percent of all the "hull loss" aviation accidents in this country were caused by human error of the flight crew.

This is far more than are attributed to aircraft design or structural problems (13.1 percent), or due to terrorism or aviation security violations. However, your fiscal year 1995 budget proposes more research into aircraft technology and security technology than into human factors.

Aren't your research priorities a little mixed up?

[The information follows:]

Human factors research continues to be a significant agency priority. However, much of this research, which is applied in nature, is now being performed under a variety of the other programs contained within the FAA budget. For example, the majority of aviation security human factors research is accomplished as part of the overall security technology program. Similarly, human factors research in detecting cracks, fatigue and corrosion is conducted within the aging aircraft program. Similar examples of applied human factors research also exist within the aviation weather and air traffic control programs.

OVERSIGHT OF DESIGNATED MECHANIC EXAMINERS

Mr. CARR. Part of the FAA's safety oversight responsibility involves the testing of applicants who want to become certified aviation mechanics. You perform this function through 669 designated mechanic examiners (DMEs), who test about 20,000 applicants each year. In a recent audit, the Inspector General's office observed the tests administered by some of the DMEs and found some serious problems. What were these problems, and why didn't your management systems detect them?

[The information follows:]

The Inspector General audited approximately 5 percent of the total DME population and found the DMEs administering FAA tests were not always following FAA standards and procedures. Some of those DMEs observed were not discriminating between acceptable and unacceptable test performance. The OIG audit identified 22 DMEs they felt may be abusing their appointment by lowering testing standards. Tools, equipment, and facilities of independent DMEs were in some cases not sufficient for an applicant to fully demonstrate the basic skills for the rating sought.

New FAA Aviation Safety Inspectors were not adequately trained to supervise DMEs or were not following published guidance.

Available FAA inspector resources were dedicated to other high priority tasks (i.e. air carrier surveillance, and surveillance of maintenance facilities). During surveillance of DMEs under National Work Program (NPG) requiring random surveillance of a certain population of DMEs, some of the FAA inspectors were not identifying testing being done improperly. If no negative findings are entered into the data base, management would not have any indicators of a problem. Surveillance is now 100 percent of all DMEs. At no time has the sampling of DMEs or mechanics tested by them indicated a derogation of the appropriate procedures or quality of the overall DME program. The OIG stated that exiting DME Guidance was quite adequate and was used by the OIG to perform the audit. A training program has been established to ensure that all DMEs and FAA inspectors responsible for supervision and appointment of DMEs have been currently trained to have a full understanding of the requirements of the designee program. A focal point in each FSDO has been established as a "standard" for all DME issues and questions. FAA has always had a standardized designee training program and it is required that all designees attend an initial and recurrent training courses at a predetermined interval. FAA inspectors must now attend recurrent training with the DMEs.

OVERSIGHT OF DESIGNATED MECHANIC EXAMINERS

Mr. CARR. Most disturbingly, the IG found cases where examiners were compromising their integrity. For example, one examiner agreed to provide a shorter and easier test for a one-time fee of \$600; another helped a student during a test by telling him the right answers. What is wrong with your field supervision of these examiners which would allow such gross abuses, and what have you done to tighten up that supervision?

[The information follows:]

FAA did not have a comprehensive documented system for ensuring that proper oversight was being administered. As part of the 1992 National Work Program, the FAA performed 1,201 evaluations of Designated Mechanic Examiners (DMEs) performance. FAA conducted special emphasis training for over 100 FAA Inspectors in Oklahoma City (October 1993). A team is currently revising the FAA's Order for DMEs, scheduled for completion June 1994. The 22 DMEs identified as possible abusers of their delegation were re-evaluated, and appropriate corrective actions were taken. FAA Notice 1800.132, National Work Program, now requires 100 percent annual surveillance of all DMEs. FAA Order 8610.11B, DME Standardization Training Schedule, now requires FAA inspectors supervising DMEs to attend recurrent training. FAA Airworthiness Inspector Indoctrination Training Course for new FAA inspectors is being revised to include adequate initial training for DME appointment and surveillance.

DME—REDUCTIONS IN MIDDLE MANAGEMENT

Mr. CARR. Your fiscal year 1994 and 1995 budgets propose significant reductions in "middle management," which includes first level supervisors in many cases. Are you reducing the layer which supervises the DMEs?

[The information follows:]

In reducing the number of middle managers, including first-level supervisors, FAA is not reducing the work force assigned to provide oversight of designees. Non-supervisory aviation safety inspectors are assigned to the oversight of designees and they are not affected by the reduction. The reduction in the number of first line supervisors may actually result in returning some former supervisors to the non-supervisory work force, thus increasing the number of inspectors available to perform all aviation safety inspector work functions, including designee oversight.

INSPECTION PROGRAM

Mr. CARR. The IG has conducted several audits over the past couple of years on various aspects of FAA's inspection programs. In

this year's hearing, we asked them to give you an overall grade (A through F), and they gave you a "D". They describe your inspection program as a "material weakness" of the department having "significant deficiencies." Mr. Hinson, how would you rate the FAA's inspection program, and why?

[The information follows:]

In our responses to the Inspector General, we have stated that we consider our inspection program to be very effective and do not consider our inspection program as a "material weakness." We addressed the issues in the IG report and have indicated actions that are being taken to make improvements in the programs. Further, steps are being taken to make more effective/efficient use of our inspector resources. We have developed the Safety Performance Analysis System (SPAS) which is a decision support tool for FAA management and inspectors to better target inspections to high risk areas. SPAS measures the performance of a carrier in relation to the performance of others in that peer group. We are exploring means to apply computer technology by the use of a portable support system. This new technology is called Performance Enhancement System (PENS). Working with PENS, inspectors can access FAA data bases and analyze data using cross-referenced regulations and guidance. The new technology will improve and standardize data collection of inspections. Also we are developing a new program entitled Program Tracking Reporting System Activity Ranking System (PARS). This will be a support tool to assist managers and inspectors in the implementation of the office work functions.

We have placed special emphasis on and improved our inspections/surveillance of the Designated Mechanics Examiner Program. The Suspected Unapproved Parts Program has been developed and additional guidance is being developed in conjunction with industry advisory groups to address issues regarding the use of aircraft replacement parts.

INSPECTION PROGRAM—IG RECOMMENDATIONS

Mr. CARR. The IG told us you need to: One, strengthen supervision of inspectors; two, establish a system to better target inspections to high-risk areas; and, three, improve follow up and enforcement of aircraft replacement parts. What are you doing in each of these areas?

[The information follows:]

In response to recommendations from the IG, we have taken the following actions: To strengthen supervision of inspectors, we have issued additional guidance and placed special emphasis on existing guidance. To better target inspections to high risk areas, we have developed the Safety Performance Analysis System (SPAS). SPAS is a decision support tool for FAA management and inspectors which will include the use of algorithms to sort and integrate data and data trends from related data bases to assess the relative compliance of the operators. The performance indicators in the air operator area measure the performance of a carrier in relation to the performance of others in that peer group or the performance of a carrier in relation to its own past performance. Based on the outcome of the SPAS analysis inspectors will be able to plan the annual work program, prioritize the planned work on a quarterly basis, and regularly define areas of discretionary surveillance based on time information. SPAS also provides a profile of an operator based on the indicators and is a measure of the carrier's conformance to FAA regulations. FAA is addressing the use of aircraft replacement parts. Additional guidance in the form of advisory circulars is being issued. Special emphasis is being placed on surveillance/inspection of repair stations. A complete analysis of the issue, as directed by the Conference Committee in last year's Appropriation report is nearing completion.

INSPECTION PROGRAM—TARGETING STAFF RESOURCES

Mr. CARR. Your budget proposes a large staffing increase in safety inspectors. Yet I believe the focus of most of the IG recommendations has been to improve the allocation and targeting of inspector resources, not providing more. Would you comment?

[The information follows:]

FAA agrees with the OIG recommendations to improve the allocation and targeting of inspector resources. The budget request for an additional \$3,000,000 in PCS funding is in support of reallocating existing inspector resources into field offices where their knowledges, skills, and abilities will be better utilized.

However, an increase in the number of aviation safety inspectors is also necessary to enable the FAA to provide appropriate minimum surveillance levels and to continue to provide timely initial and ongoing certification service for air carriers, pilot training schools, mechanic training schools, repair stations, and other certificate holders. This year's budget does not ask for additional positions; we only cite the need to fund positions which Congress has already provided and which are essential to carry out the safety functions they are assigned.

SAFETY PERFORMANCE ANALYSIS SYSTEM [SPAS]

Mr. CARR. What contribution to improving the efficiency of your inspector work force do you expect to gain from deployment of the safety performance analysis system (SPAS)?

[The information follows:]

SPAS will provide an analytical tool the FAA can use to analyze a wide variety of data to help identify trends and to better focus scarce inspector resources. This will enable the FAA to better plan and execute a surveillance program that concentrates the workforce on the areas of greatest risk, thereby increasing its efficiency and effectiveness.

SPAS will improve the efficiency of the inspector workforce by rapidly (1) compiling, analyzing and summarizing large amounts of certificate holders and performance data, and (2) providing rapid access to the most critical information needed by the workforce. Effectiveness will be gained by better identifying trends or specific areas of concern and directing inspector resources accordingly.

FOREIGN MANUFACTURED PARTS

Mr. CARR. The Inspector General has also criticized the FAA's lack of oversight for foreign manufactured parts. According to her, you are not providing oversight of foreign manufactured aircraft parts and have no surveillance activities planned through 1996. Why is your level of effort so low in this area, and how big a problem is it?

[The information follows:]

FAA places full responsibility directly on each production approval holder for assurance that products conform to the FAA-approved design, and are in condition for safe operation. This includes products produced at suppliers to the production approval holders regardless of location. Supplier control must be addressed by each production approval holder's inspection/quality control system and documented as a prerequisite to FAA production approval. FAA carries out its responsibility through surveillance of the production approval holder's inspection/quality control system and reserves the authority to inspect domestic or foreign suppliers at any time.

FAA has conducted and will continue to conduct supplier evaluations. For example, from 1989 through 1991, the Engine and Propeller Directorate performed surveillance of IHI, Kawasaki, and Mitsubishi located in Japan; MTU in Germany, Rolls Royce in England, and FIAT in Italy. The Aircraft Certification System Evaluation Program (ACSEP) schedule for 1994 includes 17 foreign suppliers.

Currently, FAA is conducting an extensive review of its policy concerning supplier surveillance. A Supplier Management Team (SMT) was chartered in June 1993 to review and revise appropriate policy by January 1995.

FAA concludes that the management control system employed by FAA to provide surveillance over U.S. manufacturers, including their domestic and foreign suppliers, provides reasonable assurance that aviation products conform to the type design data and are in safe operating condition. We further conclude that there is no evidence of safety problems. However, Aircraft Certification recognized the need for additional resources to support its manufacturing inspection activities and the SMT was chartered for this purpose.

CERTIFICATION PROGRAM

Mr. CARR. Another area where the FAA has been criticized recently is your certification program for commercial aircraft. In testimony last October, the GAO said that your certification staff are not able to effectively oversee or add value to the certification process due to a lack of guidance and training. Their conclusion was that "the current certification process generally results in safe aircraft designs because of the efforts of the manufacturers and expertise of their FAA designated employees." How do you respond to the GAO's findings?

[The information follows:]

FAA disagrees that we are unable to effectively oversee or add value to the certification process. We continually maintain management control over the critical elements of the certification process. Our value added to the process involves the establishment of the certification basis, establishing special conditions to cover novel or unique design features and approving any equivalent level of safety findings. A key element of FAA oversight is the review and approval of all of the manufacturers compliance plans and continual dialogue with the manufacturers' designees. FAA personnel can then become involved in the critical aspects of the overall program, leaving the straight forward compliance activity to the manufacturers' designees. FAA value added to the certification process lies more in the up-front definition of the regulatory standards and methods of compliance and focusing on the critical technical aspects of the program rather than being involved in the technical "nuts and bolts" compliance activity.

CERTIFICATION PROGRAM—INTERNAL STUDY

Mr. CARR. According to the GAO, an internal FAA study found that during certification of the Boeing 747-400 aircraft in the late 1980s, FAA engineers did not understand the complex flight management system, which operates the navigational system and monitors aircraft system performance. Because of this, the FAA delegated to Boeing designees the approval of the entire system. A similar process took place on 10 other aircraft systems, including the braking system. Why didn't this internal study cause the FAA to rethink the effectiveness of its certification program years ago? Why does the GAO have to prod you to make what would seem to be fundamental improvements?

[The information follows:]

We do not agree with the GAO statement that FAA delegated approval of the 747-400 Flight Management System (FMS) and other 747-400 systems, because we did not understand those systems. The GAO examiner had a lengthy interview with the FAA engineer who was familiar with not only the original system approval, but follow-on systems approval as well. FAA engineers and pilots were sufficiently knowledgeable of the design and functioning of the FMS and the other systems to permit the final approval of the compliance documentation to be performed by the manufacturers' designees. FAA Flight Test Pilots, for example, flew the test airplanes daily, using and evaluating the FMS and how it related with other systems.

CERTIFICATION PROGRAM—CONTRACTOR CERTIFICATION

Mr. CARR. Apparently, your certification staff suffers from inadequate experience. According to the GAO, only 17 percent of your staff have six years or more of experience. They say that over half of your engineers with primary responsibility for certifying the Boeing 777 have never even participated in a major certification project. Between fiscal years 1990 and 1992, only 1 of the 12 FAA engineers responsible for approving aircraft software attended a software-related training course, even though software technology

changed greatly over that time period. Why has this situation been allowed to degenerate to this level, where contractors are certifying their own designs as safe and government inspectors don't have the expertise or training to question industry's conclusions?

[The information follows:]

In general, the GAO report places far too much emphasis on FAA certification personnel having detailed scientific knowledge. It is far more important for our engineers to understand the regulations and how they can be acceptably complied with. Engineering knowledge is certainly important for our engineers but not necessarily to the degree of that of the manufacturers engineers. FAA engineers do not have to design airplanes. In Tony Broderick's testimony to the House Subcommittee on Aviation (Congressman Oberstar) on October 20, 1993, he stated:

"We must be particularly mindful that, in the exercise of our certification responsibilities in the FAA, we not impede or stifle the creative, technology-advancing ideas of our industry. We must work closely with these manufacturers as their designs become reality, but our certification personnel will not be leading the technology curve. Instead, as a practical matter, we have to bring ourselves up to speed with new concepts once the manufacturers have settled on their proposed design choices and approaches. The manufacturer's role focuses more on the "hows" of the design, while FAA focuses more on issues such as failure modes."

These points were made repeatedly to the GAO examiners who interviewed FAA engineers, managers, etc.

Regarding the inexperience level of engineers working on the Boeing 777, the GAO examiners were given detailed descriptions of how the FAA is managing the 777 program, including the experience level of the managers and supervisors that are overseeing the activities of the project team. The GAO seemed impressed with the 777 project process at the time of the interviews but did not include those impressions in the report.

SAFETY INDICATORS PROGRAM

Mr. CARR. In 1987, the Senate Appropriations Committee directed FAA to develop a standardized set of safety indicators to measure the safety performance of FAA's air traffic operations on a consistent basis over time. Even though the Administrator called for a prototype system to be fielded by the end of 1988, at the end of 1992 the GAO reported that such a program was still several years away. Why has this proven so difficult for the FAA to implement?

[The information follows:]

FAA's Safety Indicators Program, currently called the FAA System Indicators Program is now operational. It provides a periodically updated, overall view of the operation and performance of the National Aviation System. Indicator data include accident and incident rates, and measures of efficiency, inspector activity, operator compliance, and the environment in which the system operates. Additionally system indicators are under development. Plans include the development of indicators incorporating human factors data. FAA management currently has access to the System indicators analysis. The system indicator data are electronically provided to senior FAA managers quarterly. Within the next few weeks, the first annual "Aviation System Indicators" report will be made available to the industry and the public. This annual report will replace the quarterly document which had a limited distribution within the agency and industry. We regret that this valued document could not have been distributed early, but are pleased with the quality of our efforts.

Mr. CARR. In its January 1993 response to the GAO report, the FAA indicated that it would not develop a program plan or milestones, but "is committed to program implementation and will act to secure the necessary funding." In other words, you like the idea in concept but won't commit to specific dollars or schedules. Why not?

[The information follows:]

In January 1993, the System Indicators Program was in the midst of a major program review and it was inappropriate to respond with specific dollar funding levels or schedules. Since then, the FAA has acted to fully fund the Systems Indicators Program at \$550,000 per fiscal year. The first annual System Indicators Report is scheduled to be published and distributed to Congress, governmental agencies, aviation organizations, and the general public in May 1994.

DENVER MANAGEMENT CONFERENCE

Mr. CARR. Last November, the FAA convened a "management meeting" for its systems operations managers in Denver, Colorado, which was attended by 25 FAA personnel (10 from the regions and 15 from Washington, D.C.). This was the same time and place as the high profile "dedication" ceremonies of the New Denver Airport, which were attended by the Secretary of Transportation and other dignitaries. Was it simply a coincidence this meeting was chosen at the same time and place as the dedication for the new airport?

[The information follows:]

Normally, we alternate regions hosting the meetings. We purposely selected a central location to hold the meeting, since the AXO Management Team comes from locations throughout the country. Denver offers direct flights from most major cities and per diem rates are very reasonable; we were able to find lodging at a downtown location for \$52.00 per night plus tax (well below per diem), and the meeting room was provided at no cost. The previous AXO manager's meeting was in Oklahoma City in August 1993. The lodging rate there was \$70.00 per night plus tax.

Mr. CARR. In February 1993, President Clinton signed an executive order directing that a cost comparison be conducted for potential sites of conferences, in order to minimize the cost of conferences. I understand that such a study was not performed in this case, because it was considered a "meeting" instead of a "conference." This raises the point that, to ensure implementation of the executive order, you must have guidelines to tell planners what should be considered "meetings," "conferences," "seminars," et cetera, for the purposes of tracking compliance with that order. Is that right?

[The information follows:]

FAA has informal guidelines for defining a conference. It is defined as a gathering attended by FAA staff, as well as others outside the agency where the issues being discussed are not routine, day-to-day matters.

To comply with the President's February 1993 executive order, the Department of Transportation issued Federal Travel Regulation Amendment 32 on December 2, 1993. This amendment provides guidelines on how to estimate the cost of meeting sites. In some cases, there are logistical or operational reasons that call for travel to a particular location (e.g., program review of a facility under construction, proximity to test facilities, etc.). The amendment provides policy consistent with the executive order governing conference planning to minimize the cost of conferences. FAA adheres to the guidelines covered in the regulation.

Mr. CARR. How many FAA personnel attended the opening ceremonies at the New Denver Airport, and how was that number justified?

[The information follows:]

Airport Opening Ceremonies Attendees:**FAA****Duty Station****Office of the Administrator**

David R. Hinson, Administrator-ES

Peter Appel, Special Assistant, GM-14

Washington

Headquarters

Executive Director for System Operations

Monte Belger, Executive Director

Luis Castro, Technical Assistant

Washington

Headquarters

Clyde DeHart, Regional Administrator

Southwest Region

Airway Facilities

Jerry Champion, Program Manager, New Denver

Airport, GM-15

Washington

Headquarters

NAS Development

Lindsey Smith {Presenters at AXO

John Turner, Managers Meeting}

Washington

Headquarters

Human Resources

Herb McLure {Presenters at AXO

Management Meeting}

Dorothy Berry

Washington

Headquarters

Northwest Mountain Region

Fred Isaac, Regional Administrator

Ed Tatum, Airports Division Manager, SES

Northwest Mountain

Region

Eleven working level people (who spend the majority of their time in Denver on a regular basis) were in Denver for project work. Nine of these eleven attended the dedication ceremony. They are core members of the new Denver International Airport Special Projects Office Team. They were in Denver the week of November 15, 1993, on official business in conjunction with their Airport related responsibilities.

<u>NAME</u>	<u>TITLE</u>	<u>GRADE</u>	<u>DUTY LOCATION</u>
Bair, Roger	Assistant for Transition Planning	GM-15	Seattle
Golder, Judy	Secretary	GS-6	Seattle
Greene, James	Aviation Safety Inspector	GS-14	Seattle
Moon, Keith	Real Estate Specialist	GS-12	Seattle

Baty, Therese	Contracting Officer	GS-14	Seattle
Flood, Walt	Special Projects Officer	GM-15	Seattle
McCool, Morris	Manager, Special Projects Officer	GM-15	Seattle
Bishop, James	AF Program Manager	GS-14	Seattle
Foster, George	Electrical Engineer	GS-13	Seattle
Handke, Harrold	Airport Certification Inspector	GS-14	Seattle
Dalton, Sarah	Airport Planner & Capacity Officer	GS-14	Seattle

Note: None of the AXO Management Team members attended the Gala events.

CONFERENCES (FAA-SPONSORED)

Mr. CARR. In fiscal year 1992, the FAA sponsored 55 conferences which were attended by a total of 1,184 FAA employees. Some examples of these conferences were as follows:

<i>Conference Title</i>	<i>No. of FAA Employees Attending</i>
Evaluation of Pilots with Heart Disease	50
International Tailplane Icing Workshop	20
Int'l Conference on Airplane Ground Deicing	75
National Conference on Aviation & Space Education	20
National Conference on Aviation Magnet Schools	15
Annual State of the Aviation System	40

To what extent does the FAA review its budget for conferences to make sure that only the most essential ones are held, and only the most essential personnel attend?

[The information follows:]

FAA does not have a formal review process for conferences. Senior managers are expected to manage the number and cost of conferences to ensure that their resources are appropriately managed. Each organization performs cost comparisons for various locations to ensure that costs are competitive. Whenever possible, conferences are held in Washington.

Conferences are an integral part of ensuring good management of the agency. FAA conferences by and large are working meetings. Given the scope and complexity of FAA's responsibility and the wide geographic range of FAA facilities and staff, conferences are important to maintaining a uniformity of policies and management direction within the agency.

CENTER FOR MANAGEMENT DEVELOPMENT

Mr. CARR. Why is it necessary for the FAA, in these tight budget times, to continue to operate its own facility for management training, the Center for Management Development in Palm Coast, Florida, when management training is provided at competitive rates by private companies?

[The information follows:]

The training we are providing at the Center of Management Development is both excellent and cost effective. We view it as an investment in our supervisors and managers. The cost per student week of training at CMD is \$650, which compares favorably with other public and private sector training institutions where costs range from \$950 to \$5,000 per student per week. As we develop the capability for distance learning via satellite or computer, we will be reducing the need for such on-site training and will sell any excess capacity at CMD to other Government organizations seeking high-quality instruction for their supervisors and managers.

MANAGEMENT TRAINING—GREGORY MAY

Mr. CARR. Last year, a television news show ran a story alleging "cult like" training by FAA consultant Gregory May at the Center for Management Development. According to the IG, who is conducting an investigation into the matter, it is alleged that, among other things, trainees were: tied at the wrists in small groups for a 24-hour period and required to sleep and eat while tied together; required to use meditation exercises; and subjected to name calling. Is the FAA aware of any such practices used in management training courses at the Center for Management Development?

[The information follows:]

The complaints that led to the CNN broadcast were not registered by FAA employees, but by employees of the contractor who provided instructors at CMD. The

training Dr. May provided the contractor was a direct agreement between him and the contractor.

To our knowledge, one class of 25 FAA executives participated in a meditation exercise Dr. May presented as part of an executive development program. Although none of the participants objected to the exercise, FAA asked Dr. May not to repeat it in training he conducted for FAA. Our staff at CMD (6 people) also participated in a meditation exercise Dr. May presented to the contract instructors at CMD. We know of no FAA employees who were tied together or who participated in other exercises described by the complainants.

FAA had a monitor at every executive training session Dr. May conducted for FAA and also collected evaluations from each person trained. Our monitors did not observe name calling although some participants felt they had been "labeled" by Dr. May. On the whole, we received few complaints and overwhelming praise for the training Dr. May provided.

None of the methods the contractor's employees complained about were ever used in management training provided by FAA's Center for Management Development.

Mr. CARR. Wouldn't such techniques be revealed when the FAA reviews a potential consultant's proposal?

[The information follows:]

Yes. It is important to remember that the training in question was not procured by FAA nor were the students FAA employees. The training was provided by Dr. May under a consultancy contract with the University Research Corporation (URC) and the students were URC employees.

Our training contracts normally specify the methods or processes to be used during the training and FAA carefully reviews all aspects of a proposal before deciding to proceed.

Mr. CARR. How long had Mr. May been under contract with the FAA to provide training at the management center?

[The information follows:]

Dr. May was never under contract with the FAA to provide training to FAA students as a part of the management center curriculum. On several occasions the facilities of the Center for Management Development (CMD) were used for training that Dr. May delivered, but these were not conducted under CMD auspices or contract.

After the 1981 controllers' strike FAA decided it needed to make fundamental changes in its management style and work environment. To assure both a recovery from the devastating effects of the strike and to position FAA for the future, FAA changed the way it selected and trained supervisors, managers and executives to emphasize participative management skills. In addition, the managers and executives already in the system were provided training to help change the way they dealt with people. The agency selected Dr. May as one training and organizational development consultant who could help train senior managers to be more effective. FAA has used Dr. May to train executives since May 1984; executives who believed they benefitted from his training also sometimes engaged Dr. May for training and organizational consultation in their own organizations.

CMD-AWARD FOR DIRECTOR

Mr. CARR. Within a few weeks after the airing of this show, the Director for the Center for Management Development received the Presidential Rank Award, based upon the recommendation of senior FAA officials including then Acting Administrator Del Balzo. Since the allegations of serious problems at CMD were known at that time, shouldn't they have been investigated before the head of the facility received such a prestigious award?

[The information follows:]

In the fall of 1991, eighteen months before the CNN broadcast, the FAA administrator nominated Ray Salazar for a Meritorious Presidential Rank Award for distinguished career achievements. The review process for Rank awards is understandably intense and requires routing of the nominations through Department of Transportation offices, the Office of Personnel Management, and the White House. The

process culminates a year after nomination. In this case, Mr. Salazar was approved in the fall of 1992, well in advance of the CNN inquiry and broadcast.

The Office of the Inspector General has been investigating for over a year, and has released no information which would either substantiate or repudiate allegations that may have been made against FAA employees. It would be inappropriate to even imply that Mr. Salazar, an extraordinarily talented and dedicated executive, should be assumed to be unworthy of recognition for executive excellence in the years prior to 1991 because of unsubstantiated allegations which arose in early 1993.

GREGORY MAY TRAINING-IG INVESTIGATION

Mr. CARR. According to the IG, the FAA has not fully cooperated in their investigation. They said that FAA documents were difficult to gather, and that "certain FAA witnesses have not been forthcoming." Why hasn't the FAA cooperated fully, and doesn't this raise a particular concern since one of the allegations is that the "cult like" training practices were conducted with the full support of top FAA managers, and that an improper relationship existed between the contractor (Mr. May) and FAA officials?

[The information follows:]

As a matter of both policy and practice FAA cooperates fully with all Office of the Inspector General inquiries. In this particular investigation, we believe we have fully cooperated, and that we have provided any and all information requested (sometimes more than once). Because of the extent and complexity of the OIG's requests for information we do not ordinarily track, we had to invest extraordinary time and effort to provide the requested information, and were therefore unable to provide all the information on the dates the OIG requested.

In the course of the OIG investigation several FAA employees complained about the investigative techniques employed by some OIG investigators. These tactics include late night, unannounced visits to private residences, and on one occasion, to a hotel room, as well as numerous questions about sexual involvement among our employees. These concerns led some FAA witnesses to feel intimidated and several have asserted their due process entitlements. FAA counsel has held that FAA witnesses who request that counsel be present during the interview have that right; the OIG, until two weeks ago, did not allow FAA employees to have counsel present during the interview. Resolution of these due process matters delayed a small number of interviews; we, however, do not perceive the issue to be our employees' willingness to cooperate or be fully forthcoming with information required by the OIG in the course of their investigation.

CMD FACILITIES

Mr. CARR. According to information provided for the record two years ago (p. 1145), the management center has an extensive recreational facility, including a pool, basketball, handball and volleyball courts, exercise and weight room and equipment. At that time, no fees were charged for FAA managers to use this facility. To cover its costs, the Federal taxpayers were paying almost \$40,000 a year to support the facility. Shouldn't such a facility be self-supporting, particularly when its clientele is composed of upper level managers and supervisors?

[The information follows:]

The facilities are used as an integral part of CMD's wellness program which was integrated into the CMD curriculum on the basis of extensive industrial research which shows that physical health and stress reduction activities can be correlated with managerial effectiveness. CMD's Business Plan, now under development, focuses on making the curriculum and facilities available to a wider range of clientele, including other Federal agencies and private organizations. An important item in the Business Plan is the development of a cost reimbursable charge schedule designed to make the facility more self-supporting.

MID-AMERICA AVIATION RESOURCE CONSORTIUM

Mr. CARR. Mr. Hinson, last May before the House Public Works Committee, Acting Administrator Del Balzo said the following regarding air traffic controller training at the Mid-America Aviation Resource Consortium (MARC): "I think the program we have established has proven itself . . . I think we have demonstrated in fact that we can produce a better qualified person in a shorter time at a significantly less cost to the government. Having now demonstrated that, we really need to think globally about the right balance and how far we can expand that particular program. That is the right way to recruit air traffic controllers. There is no question about that." (p. 67).

Considering this statement, it seems odd that the administration proposes to delete the \$2 million funding for MARC in fiscal year 1995. Given the FAA's supposedly strong support for this program, why are you recommending its termination?

[The information follows:]

Since fiscal year 1990, Congress has appropriated \$12.65 million to MARC for the establishment and operation of an air traffic control training center. None of these funds were appropriated at the request of FAA. FAA does not support the continued appropriation of funds for this purpose. In addition, both *The Report on the National Performance Review (NPR)* and the *Office of Inspector General Audit of FAA-Sponsored Higher Education Programs* (Report No. AV-FA-3-010) recommend termination of funding for the Collegiate Training Initiative program in which MARC participates.

AIRPORT ISSUES SHUTDOWN IN AIP GRANT PROGRAM

Mr. CARR. Because of a lack of authorization, the airport improvement program (AIP) has been shut down since October 1, 1993. Can you give us any examples from specific airports which indicate the impact of this situation?

[The information follows:]

Many airports had scheduled construction to begin or bids to be taken in early spring in order to continue ongoing projects or begin new projects at the beginning of the warm weather construction season. Those airports have had to defer their schedules, and as the delay continues, their programs either suffer financially or will be postponed. Some of these locations are: Denver, Anchorage, Dallas-Fort Worth, Colorado Springs, Fort Wayne, Cleveland, Minneapolis, Toledo, Chicago, Akron, Valparaiso, and Frankfort. Other locations with LOIs (such as Dallas-Fort Worth and Reno) had developed financial plans which contemplated grants earlier in FY94. Delays in reauthorization have negative financial consequences on such locations.

AIP OBLIGATION LIMITATION IN 1995

Mr. CARR. For fiscal year 1994, we provided an obligation limitation of \$1.69 billion, which breaks down, on a cash flow basis, to \$140 million per month. If the authorization were enacted by the end of May and funds flowed at their historic rate, the \$1.69 billion would last well into fiscal year 1995. [They would last until May 1995.] Given this delay, why shouldn't we reduce the fiscal year 1995 obligation limitation, to provide consistent funding for AIP grants, without the peaks and valleys which would otherwise occur?

[The information follows:]

Unlike other programs, the authorized levels in the Airport and Airway Improvement Act of 1982, as amended, as well as the \$1.69 billion Appropriation Act limita-

tion for contract authority under AIP expire on the last day of the fiscal year and the funds are not "available until expended." Therefore, discretionary funds are "lost" after September 30, if not obligated by that date. Apportioned funds (passenger entitlements, cargo entitlements, State, and Alaska) are available for the current fiscal year plus two additional fiscal years after apportionment.

AIP is also different since the funds do not provide a monthly flow to airport sponsors but are based upon airports' needs for individual planning and development projects. FAA projections show a \$6 billion a year national need for airport projects. The delay in AIP funding only defers the projects for future years causing an increase in overall need for those future years.

Finally, due to the nature of project formulation (design, bidding, etc.) and execution, a large amount of AIP funding is normally obligated after the first quarter to first third of a fiscal year and much of this is obligated after May. Any delay serves to compress the project activities, but all available funds could be obligated within the current fiscal year if reauthorization is enacted within the next month or so. In large part, this is due to the readiness and preparation of airport sponsors to continue design and bidding work in anticipation of eventual reauthorization of AIP.

SHUTDOWN IN AIP GRANT PROGRAM

Mr. CARR. Isn't it accurate that this long shutdown in the program means that the airport and airway trust fund cash balance will rise during fiscal year 1995, and that had the program been reauthorized, the balance would have continued its downward trend?

[The information follows:]

The AIP grant program has been without the authority to obligate monies since the beginning of fiscal year 1994. If this situation were to continue, the uncommitted cash balance, which represents the surplus revenues in the Trust Fund, would increase. However, if the money is committed by the end of the fiscal year, the uncommitted cash balance will not be affected. To the extent the delay in reauthorization slows the actual expenditure of AIP monies, interest revenue will be slightly larger than projected. This increase would have the impact of slightly diminishing the downward trend in the uncommitted cash balance projected through fiscal year 1995, but only slightly.

REVENUE DIVERSION

Mr. CARR. The IG has issued 22 reports to date alleging diversion of airport revenue and loss of airport rent. Those reports, combined with our study by the Surveys and Investigations [S&I] staff, paint a picture of an FAA which just checks to make sure the right boxes are marked on airport grant assurances, without doing the leg work necessary to verify those assurances. In a hearing last May, the Acting FAA Administrator said "there is no question we need some tighter controls." Considering the local political pressures many airports are under to divert revenues, shouldn't the FAA be doing more than simply trusting the airports making those certifications?

[The information follows:]

In recent years, because of reductions in Airport personnel and increased workload due to enlarged and new programs, the FAA found it necessary to rely on airport certification in many areas, not just revenue diversion. The certification posture seemed very reasonable, considering 99 percent of grants go to public agencies, such as counties, cities, and port authorities. Since this has not been adequate, the FAA is strengthening the audit procedures set forth in the Compliance supplement for single audits of State and Local governments. Additionally, FAA will also annually select a sample of airports to review for potential noncompliance with Federal obligations. Airports found to have this potential will be targeted for an OIG airport revenue audit.

Mr. CARR. Concerning FAA oversight, the S&I report stated "there is no DOT/FAA policy establishing a uniform procedure to

determine whether sponsors claiming an excepted status are in fact excepted from the AAIA revenue retention provisions and thus are allowed to divert airport revenue... FAA officials stated FAA has neither the resources nor the expertise to monitor this requirement and considers revenue compliance to be its lowest priority."

Given the Congressional interest in this subject, should the FAA develop such a policy and procedures, and devote more resources to enforcement of the statute?

[The information follows:]

Whenever a diversion is claimed to be under the excepted status by an airport sponsor or otherwise brought to the attention of the FAA, it will be subjected to a comprehensive legal review. A determination will be made in each instance based on the facts in that particular case whether the diversion meets the grandfathered (or excepted) provision.

REVENUE DIVERSION

Mr. CARR. Under the law, the FAA is granted the authority to withhold AIP funds if an airport diverts revenue. However, according to the S&I study, you have never done so. One FAA official is quoted as saying that revenue diversion is a fight between airlines and airports, and the FAA should stay out of it. Mr. Hinson, do you agree that AIP funds should be withheld from airports which are diverting revenue improperly or failing to maximize the value of their rental income?

[The information follows:]

We agree that, when an airport is found to be in noncompliance with Section 511(a)(12) of the AAIA, it is appropriate to withhold funds. However, before this is done, it is necessary to ensure that due process with a right of appeal is followed in accordance with Section 519 of the Act, which addresses the withholding of grant approval and payment of funds under a grant agreement.

The answer to the second part of the question, dealing with failing to maximize the value of their rental income, is not answered as easily. There are many situations where airports have rented aeronautical space based on competitive negotiations, which may be less than fair market value. Such action allows the airport to offer services to the aviation public which then attracts pilots to the airport and increases the number of operations at that facility. This in turn means more business for the airport. An airport is not in business to maximize rental income, but rather is to maintain a fee and rental structure which will make the airport as self-sufficient as possible under the circumstances existing at that particular airport.

REVENUE DIVERSION—COMPLAINTS

Mr. CARR. According to FAA officials, the majority of complaints regarding diversion emanate from airlines, which have a direct interest in detecting diversion. Can you tell us today how many revenue diversion allegations other than IG reports have been received by the FAA?

[The information follows:]

In addition to the Inspector General reports, the FAA has received 3 complaints from outside sources.

REVENUE DIVERSION—PROCESS TO INVESTIGATE

Mr. CARR. What process does the FAA follow when an airline or some other organization alleges revenue diversion, and is that data collected for statistical purposes by FAA headquarters?

[The information follows:]

When the FAA receives an allegation or complaint involving the possibility of non-compliance with the grant assurances, including the diversion of revenue, it follows the procedures promulgated in 14 CFR Part 13, Investigative and Enforcement Procedures, and section 519 of the AAIA. Data are not collected for statistical purposes.

REVENUE DIVERSION—GRANDFATHER CLAUSE

Mr. CARR. In 1986, the FAA issued a policy statement in the Federal Register that the use of airport revenue to support nonaviation transportation facilities would be considered when assessing requests for AIP discretionary grants, and such diversions of funds would be viewed as evidence of the sponsor's ability to fund airport projects without discretionary aid.

Since FAA regional offices were not complying with the policy, regions were reminded on June 18, 1993, to adhere to this policy in 1994. Does this include airports diverting revenue in accord with the grandfather clause?

[The information follows:]

Under the grandfather provision, some airport operators may legally transfer funds for nonairport purposes. The 1986 policy statement was directed at the airport operators who were covered by this provision. The policy statement, while recognizing their right to legally divert revenue, placed them on notice that FAA would take this into consideration in deciding whether such an airport operator should receive discretionary funds.

REVENUE DIVERSION—NOTIFICATION OF SPONSOR

Mr. CARR. The Inspector General has now issued 22 reports showing that revenue diversion is widespread. Has the FAA notified any airport sponsor to date that discretionary grants would not be provided based upon revenue diversion?

[The information follows:]

No, the FAA has not notified any airport sponsor to date that discretionary grants would not be provided based on revenue diversion. However, in 1986, the FAA published in the Federal Register its Policy on Use of Airport Improvement Program Discretionary Funds. This official notification put all sponsors on notice that the FAA will consider a public airport sponsor's use of airport revenue in assessing requests for Federal discretionary grant assistance available under the Airport Improvement Program. We are currently reviewing that policy and will be contacting all airports, which are known to be diverting revenue, once our new policy is finalized.

Since there is no AIP authorization currently, there has been no contact made with airports for fiscal year 1994 in this regard.

REVENUE DIVERSION—CHANGING GRANDFATHER PROVISION

Mr. CARR. Does FAA believe the Airport and Airway Improvement Act should be amended to eliminate or minimize the number of airports meeting the grandfather provision?

[The information follows:]

Because of the fact that some airports, especially those operated by port authorities, have pledged all of their revenues, including those earned by the airport against their bond issues which may be funding projects on and off the airport, it would be difficult, if not impossible, to eliminate the grandfather provision. We are not sure how the provision could be further limited without causing severe hardship.

REVENUE DIVERSION—PROCESS TO IDENTIFY DIVERSION

Mr. CARR. If this is to have any enforcement power, FAA regions will need to have a process for identifying cases of revenue diver-

sion. In the future, how does the FAA plan to identify the airports that are diverting funds?

[The information follows:]

We plan to continue to rely on third party complaints, to amend the audit procedures set forth in the Compliance Supplement for Single Audit of States and Local Governments, to strengthen those procedures, and to request audit assistance from the DOT Office of Inspector General to obtain the expertise necessary to satisfy more effectively our revenue monitoring responsibilities. In this regard, we will annually select a sample of airports for review to determine if they may potentially be in noncompliance with their Federal obligations. Those found to have this potential will be targeted for an airport revenue audit.

REVENUE DIVERSION—FAIR RENTAL VALUE

Mr. CARR. How can the FAA rely on airport sponsors to ensure the airport receives fair rental value for all airport Federal surplus property when, in most cases, the OIG determined that it was the sponsor who was using the land for less than fair rental value?

[The information follows:]

We do not agree that in most cases the sponsor is using surplus property land for its own nonaeronautical facilities. However, there is no requirement for an airport to charge fair market value (FMV) or fair rental value (FRV) based on land values located outside the airport. If aviation facilities are underdeveloped or lacking, the airport may charge less than FMV/FRV to attract aeronautical service providers. This in turn will increase aircraft activity and enhance the overall economic health of the airport. For those portions of surplus property not needed for aeronautical use, and thus available for revenue production to support the airport, FMV/FRV should be encouraged. However, even in those instances, there could be occasions where easements for noise, height of buildings, etc., could affect FMV.

REVENUE DIVERSION—LOS ANGELES

Mr. CARR. It was reported in Aviation Daily last November that the Los Angeles Department of Airports is paying one-third of the \$100,000 cost of that city's float for the Rose Bowl Parade. The department confirmed that the money comes from airport revenues, and said that they chip in every year. That hardly seems like a good excuse for diverting airport revenues. Has the FAA or the Department investigated this case of diversion?

[The information follows:]

This is the first time that we have been made aware of this allegation. We will investigate this matter and take appropriate action.

REVENUE DIVERSION—MINIMIZING DIVERSION/VIGOROUS ENFORCEMENT

Mr. CARR. In a recent edition of Airport magazine, some letters to the editor from airports around the country commented on the recent crackdown on revenue diversion. I would like to quote from a couple of those letters:

"If Los Angeles is successful in diverting revenue, we will all pay for this experience. Airports that have run with lean staffs will be hurt as we have to compete with fire, police, parks and libraries for funding." (Small hub airport in the Northwest).

"Serious city budget problems seem to always lead to discussions of ways to raid the airport. Recent Federal activity in the area has made it much easier to 'fend off' raids." (Small hub airport in the Southwest).

Would you agree that minimizing airport revenue diversion, and vigorous enforcement, will help airports around the country by allowing more funding to be spent on airport development projects? [The information follows:]

This is very difficult to answer, but minimizing airport revenue diversion may increase the amount of funds available to airports and thereby be used for development projects. However, simply minimizing revenue diversion does not mean more will be spent on worthwhile airport projects. Instead, minimizing the diversion could result in lowering rates, saving funds for anticipated projects, or undertaking less-than-worthy projects.

LETTERS OF INTENT—CHANGE IN USE

Mr. CARR. In a recent (February 1994) report, the GAO found that the FAA was not limiting the use of letters of intent (LOIs) to projects which would significantly enhance system-wide capacity, as required by statute. Some examples they gave were LOIs for projects to construct water treatment facilities, access roads at major airports, and projects at small airports which add little or no capacity to the national aviation system. What changes does the FAA intend to put in place to see to it that LOIs are only used for projects which significantly enhance system-wide capacity?

[The information follows:]

The change FAA intends to put in place is a policy for Letter of Intent approvals. The FAA has developed the policy which will limit consideration of requests for LOI's to airside development at primary or reliever airports. This policy is currently being coordinated informally with the airport and airline industry before publication in the Federal register for comment. Once the policy is issued, FAA will subject all LOI applications to the analyses outlined in the policy.

LOI'S—MODEL FOR EVALUATIONS

Mr. CARR. Does the FAA even have a model today to evaluate whether a proposed project "significantly" enhances "system-wide capacity"?

[The information follows:]

The FAA has models to measure airport capacity in terms of delays at specific airports with the existing conditions and with the addition of proposed improvements. This can provide a means to compare benefits at different airports and to gauge the relative value of competing projects.

LOI'S—FUNDING BASED ON ECONOMIC CRITERIA

Mr. CARR. Some FAA officials told the GAO that the FAA's role is to be an advocate for airport development, and they admitted they have issued LOIs when, in their judgment, it was the best way to provide funding. Isn't it time for the FAA's airports personnel to begin providing funding based on economic criteria, and with an eye toward increasing system capacity, rather than on their individual subjective judgment and their desire to be an "advocate" for development?

[The information follows:]

The FAA is an advocate for needed airport development, but LOIs have never been approved for ineligible or unnecessary work. All applications have been supported by airport master planning and carefully reviewed to establish that the projects either directly or indirectly contributed to capacity development at each airport. However, in order to best document and to establish priorities for projects, the FAA has initiated new LOI and investment criteria policies, which will subject all LOI applications to a benefit-cost analysis.

LOI'S—COLLATERAL FOR PRIVATE FINANCING

Mr. CARR. One of the premises of an LOI is that it saves the airport money by allowing them to use the LOI as collateral for private financing. However, I am only aware of one concrete case where an airport saved money with an LOI (Reno, Nevada). If we are to continue saying that LOIs save the airport sponsors money, I would hope the FAA could offer some additional examples. Can you do so?

[The information follows:]

The FAA does not have quantitative data that LOIs have saved airports money. Reno may be an example, but we offer that Indianapolis, Louisville, Orlando, and Nashville are other strong cases. The benefit is that an airport can contract for an entire project and utilize the LOI to not only establish more favorable financing terms, but also complete the project on a more accelerated basis. With individual annual grants, the contracts and work scheduled would be confined to the amount and timing of the grant.

LOI'S—MEETING REQUIREMENTS

Mr. CARR. Between 1988 and 1993, FAA issued letters of intent worth over \$2 billion. Should we have signed so many LOIs without knowing or being able to quantify whether they actually saved the airports any money?

[The information follows:]

The FAA was satisfied that all of the LOIs approved met all requirements and added airport capacity. These approvals were based on master planning accomplished by the airport, an assessment by the FAA of the merits of the project, as well as ongoing discussions with each applicant on how to structure the LOI levels and payment stream.

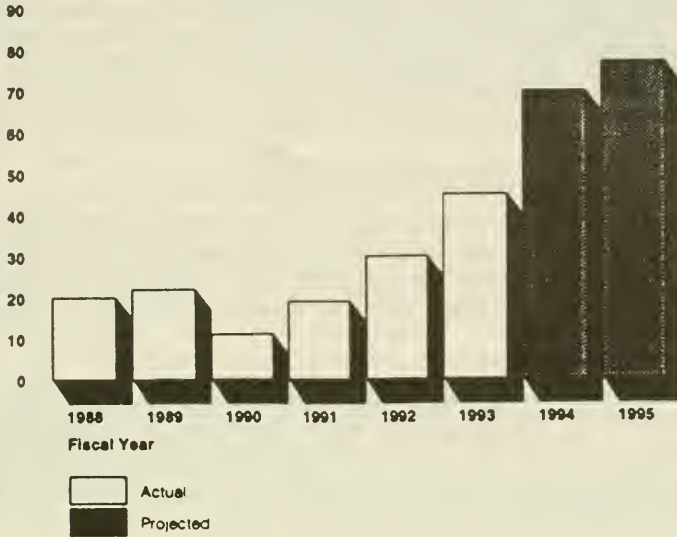
AIP FUNDING FOR NON-LOI AIRPORTS

Mr. CARR. As the following chart shows, the FAA went on a "signing spree" of LOIs in the early 1990s, which now limits the amount of discretionary funding available for all other airports. What new policies has the FAA put in place to ensure that adequate funding will be available for non-LOI airports?

[The chart and information follow:]

LOI Disbursements as a Percentage of Discretionary Funds

100 Percentage Committed to LOI Disbursements



SOURCE: U.S. General Accounting Office, based on FAA data.

In the first 5 years of administering the LOI component of the AIP, the overall level of the AIP increased from \$1.2687 billion in FY 1988 to \$1.9 billion in FY 1992, and then decreased to \$1.8 billion in FY 1993. The amount of discretionary funds available for LOIs likewise increased from \$205.1 million to \$524.8 million in FY 1992, and decreased to \$299.9 million in FY 1993. During these years, the FAA established an administrative policy that no more than 50% of the available capacity/safety/security/noise (CSSN) discretionary would be committed to LOIs. In FY 1992 and 1993, this policy was amended to include both CSSN and remaining discretionary. (Note: LOIs may also include military airport program, noise, and small hub discretionary funds.) The FAA worked closely with airport sponsors to develop work programs and LOI payout schedules which maintained the 50% rule. We expect this policy to continue and will continue to rely on future funding levels carried in the administration's outyear budget plans for the AIP to establish reasonable levels for LOI approvals.

AIP—INVESTMENT CRITERIA

Mr. CARR. Has the FAA issued investment criteria to help guide the evaluation of AIP discretionary grant proposals? If not, where does the agency stand in its development of investment criteria, and when do you believe the FAA will issue its criteria in final form?

[The information follows:]

The FAA has completed development of AIP investment criteria for use in fiscal year 1994 and beyond. The criteria will be published in late May 1994. It also identifies a series of initiatives that will be taken to further improve the project selection process. They include an industry/academia outreach program tentatively planned for August 1994 and development of performance factors and measures for those factors scheduled for completion by November 30, 1994.

NEED FOR AIP INVESTMENT CRITERIA

Mr. CARR. Last year, the Acting Administrator told this Committee: "I think our process for the awarding of discretionary money can be much better than it is today. I think it can be much more quantitative than it is today. I would agree with you on the need for investment criteria that gives us the ability to prioritize our investments based on the maximum rate of return."

Mr. Hinson, this is your first appearance before the subcommittee as FAA Administrator. Do you share Mr. Del Balzo's view on the need for investment criteria?

[The information follows:]

The process which has been used for awarding discretionary funds has been effective and efficient. We can always improve our process, and we have initiated efforts to develop AIP investment criteria for use in fiscal year 1994 and beyond.

AIP INVESTMENT CRITERIA—USE IN 1994

Mr. CARR. In a hearing last May before the House Public Works Committee, Mr. Del Balzo said the FAA would have investment criteria ready for implementation in fiscal year 1994 (p. 22). Acknowledging that the Transportation Research Board had called for investment criteria as far back as 1990, the FAA said that between May and August 1994, a better process would be in place (p. 38). Is that still the FAA's plan?

[The information follows:]

The FAA's plan for the use of investment criteria is ready and will be implemented in fiscal year 1994.

INVESTMENT CRITERIA—TYPE OF PROJECT

Mr. CARR. What type of projects does the FAA intend to evaluate for AIP discretionary grants using this document, and will that be broadened to new categories in future years?

[The information follows:]

The FAA will screen all projects to determine appropriateness for the AIP and rate all projects according to an established priority system. Further, FAA will subject high priority capacity projects which require \$10 million or more of discretionary funds to a benefit-cost analysis. This process may be broadened in future years as goals and performance measures are developed by November 30, 1994.

INVESTMENT CRITERIA—REPORT BY RE&D ADVISORY COMMITTEE

Mr. CARR. Last year, the Acting Administrator asked the RE&D Advisory Committee to review our proposal for investment criteria. The preliminary report of that group, headed by Mr. George Howard of ACI, was highly critical of investment criteria. Concerning the committee's proposed use of benefit-cost ratios, economic rate of return, net present value, or other economic-based measures, this group said such techniques "are highly theoretical, difficult and costly to employ, require critical assumptions and could bias the selection process in favor of airside capacity projects at large airports if qualitative criteria and judgment are excluded from the process." Do you agree with that assessment?

[The information follows:]

The report of the RE&D Advisory Committee, including the above statement, was useful in our development of standards for the use of investment criteria for the AIP. The FAA is aware of the difficulties in the application of benefit-cost analyses, but believes those problems can be managed for certain project types. The FAA will apply these analyses to high cost capacity projects, with benefits to be measured including reduced aircraft operating expenses and saved passenger time.

INVESTMENT CRITERIA—COMPLIANCE WITH OMB GUIDANCE

Mr. CARR. If so, how will the FAA comply with OMB guidance requiring the use of formal quantitative measurement techniques for investment projects?

[The information follows:]

Executive Order 12893 expressly directs that both quantitative and qualitative measures be considered in the use of benefit-cost analyses.

The FAA plans to use quantitative measurements in its benefit-cost analyses of capacity projects. The measures of delays at airports and related savings of aircraft operations and passenger times will be quantified through onsite surveys and/or modeling techniques.

PASSENGER FACILITY CHARGES

Mr. CARR. In your reauthorization proposal, the Administration proposes to allow the use of PFCs for projects to meet environmental mandates and to allow greater access for persons with disabilities. Does the administration's bill propose any broader changes to the passenger facility charge (PFC) program? If not, does that indicate your belief that the current program does not need to be changed beyond that?

[The information follows:]

Yes, in addition to making the eligibility of projects to meet environmental mandates the same under the PFC program as it is under the AIP, we have proposed

making "adequate justification" one of FAA's approval criteria for PFC funded projects.

ADMINISTRATION'S PFC PROPOSAL

Mr. CARR. In a speech last May, Acting Administrator Del Balzo said it was "virtually certain" that we will see some form of needs assessment applied to PFC-funded projects in the future. He said the FAA was considering the addition of two new criteria for PFC projects: (a) a requirement that sponsors certify that critical capacity, security and safety needs are all adequately funded before any expenditures will be made for lower priority projects; and (b) a requirement that limits the use of PFC funds for airport ground transportation projects. Money would be available only to complete the last link connecting the airport to the local transportation system, and would be proportional to the number of airport-destined riders.

Both of these changes would improve the PFC program, in my opinion. Why haven't they been included in the Administration's PFC proposal?

[The information follows:]

In the administration's proposed AIP reauthorization bill, we have proposed making "adequate justification" one of FAA's approval criteria for PFC funded projects. Adding this language to the PFC statute would underscore FAA's position and policy that AIP, and therefore PFC, project eligibility implies that the project must be justified. Adding "justification" to our approval criteria follows from the ideas Acting Administrator Del Balzo was considering in this speech last spring. It is our experience that airports are effectively using the PFC to complement other revenue sources and that additional statutory requirements beyond our proposal are not needed at this time.

AIP MANAGEMENT IMPROVEMENTS

Mr. CARR. In the past, the FAA has sometimes announced "tentative allocations" of AIP grant awards to airports. These are typically in the form of a letter to the airport sponsor which begins with the statement "the FAA is pleased to announce * * *." The problem is, FAA can later withdraw those funds based on new information received from the grantee.

In a letter to this Committee last August, the FAA stated "a tentative allocation is not a grant but indicates our support for a project." However, the letter sure sounds like a grant award is being made, which can cause confusion and hard feelings when the funds are subsequently denied. Wouldn't it be simpler and more straightforward to just announce a grant when it is being made, rather than issuing "tentative allocations" which can be changed?

[The information follows:]

Your point is well taken as to wording and we will see how it could be improved. However, for the reasons cited below, the notice of allocation to the airport sponsor is a key step leading to the issuance of a grant offer, which must be contingent upon applicable Federal requirements being met.

The tentative allocation (TA) provides information that a grant can be expected during the fiscal year, and this is important when sponsors do not have their own funds for project formulation.

The TA includes clear limitations and allows the sponsor to proceed with soliciting bids for the projects so that the grant does not have to be issued based on estimates. This procedure protects both the airport and the FAA from adverse financial impacts in the event that bid costs deviate significantly from the engineer's estimates.

AIP GRANTS WITH NO OUTLAYS IN TWO YEARS

Mr. CARR. At the time of last year's hearing, the FAA had 87 AIP grants totaling \$115.5 million which had not outlayed a dime in over two years. The FAA explained this by saying that in some regions, grants were being issued when preliminary estimates are received but before completion of final plans and specifications. When unexpected difficulties arise, the funds just sit around when they could instead be allocated to projects which are ready to go. Has this practice been changed?

[The information follows:]

The FAA has been moving toward the goal of only issuing grants after actual bids are received. When this goal is ultimately reached, the situation described should not exist. The situation has, in fact, improved and continues to do so.

NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS

Mr. CARR. Last year, we discussed the inadequacies of the national plan of integrated airport systems, which is often thought of as the "master plan" of the AIP program, but is today more of a shopping list. You told us at that time that a new, improved plan would be issued in September 1993. It is now April 1994 and a new report still hasn't been issued. Why not?

[The information follows:]

The revised National Plan of Integrated Airport System (NPIAS) has been undergoing extensive review and coordination within the FAA which has delayed its issuance. We expect that the NPIAS will be issued this summer.

Mr. CARR. What improvements in this plan can we expect to see when it is finally issued?

[The information follows:]

The revised National Plan of Integrated Airport Systems will describe the composition of the airport system, its condition and performance, and forecasted changes in activity, and relate these to an estimate of development needs. The revised plan will use a shorter time frame and set specific goals for the Airport Improvement Program.

AIP—LEADERSHIP IN AIRPORT DEVELOPMENT

Mr. CARR. Do you believe the FAA can take a stronger leadership role in financing airport development by targeting its resources better and coordinating them with a strong master plan, or is the FAA such a small player overall that it is unrealistic to believe the FAA can effectively control and guide airport development?

[The information follows:]

The FAA has been very effective in using the Airport Improvement Program to influence local decisions and foster an extensive, adequate, and safe national system of airports, and we expect to continue that influence in the future. Political, social, and environmental issues also play important roles in local decision making, and tend to limit the influence of Federal financial aid, so we cannot expect to have absolute control over airport development.

The FAA also plays a role in the planning of airports and airport systems through the master plan process. In future years our goal is to assist airports in planning to enhance capacity. Our review of projects under the new investment criteria will provide data to enhance not only the grant process, but also the planning process.

AIRPORT NOISE

Mr. CARR. In our fiscal year 1993 committee report, we noted that significant funds were being wasted through Federal noise

abatement grants to communities which knowingly allow development in noise-impacted areas around airports. We asked the IG to conduct a nationwide audit of this problem. This report is now in final preparation by the IG, but they found widespread building in noise-impacted zones.

Audits of building permits on land surrounding 10 airports disclosed about 6,500 housing units constructed or approved for construction on noise-impacted land. They estimate Federal funds of about \$75 million could be requested to provide noise mitigation measures for these buildings. And this was only 10 airports. Given this nationwide problem, don't we need to take stronger measures to prevent the waste of Federal funds in this manner?

[The information follows:]

The FAA is interested in pursuing new initiatives to discourage the construction of noise-sensitive development in noise-impacted areas around airports. Toward this end, the FAA has established a Study Group on Compatible Land Use to assist in the development of a national strategy. Participating in this Study Group are representatives of airports, the airline and air freight industry, the business aircraft community, state and local governments, NOISE, and academia.

The control of land uses for aviation noise purposes is a complex and controversial issue. Most of the major airports in metropolitan areas that have serious noise problems, such as Chicago O'Hare, Newark International Airport, and Detroit Metropolitan Airport, are surrounded by multiple, independent local governmental jurisdictions that individually control land uses within noise-impacted areas. In many cases, despite the efforts of the airports, local jurisdictions are still permitting residential and other noise-sensitive development in these areas. There are a variety of reasons such development is permitted, including not recognizing the noise problem, opposing the airport and not wanting to make land use concessions to it, acquiescing to local development pressure and its economic benefit (including expanding the tax base of the community), and having other higher priorities (such as increasing the stock of housing on developable land).

While the Study Group on Compatible Land Use is not due to submit recommendations to the FAA until the end of 1994, preliminary discussions of the Study Group have focused on better cooperative planning interactions between airport owners and jurisdictions controlling land uses, supported by appropriate Federal incentives—rather than either Federal land use mandates or punitive Federal financial measures. As an initial step along these lines pending completion of the Study Group's work, the Administration proposed in its AIP reauthorization package the provision of land use compatibility planning and implementation grants to states and local jurisdictions around airports that are not airport sponsors. Comments submitted on this provision by organizations represented on the Study Group (e.g., ACI, ATA, NOISE) have improved this concept.

The FAA is also considering whether stronger negative policies in the areas of FAR Part 150 program approvals and Federal funding eligibility should be instituted. The major concerns are that such policies may divest the Federal government of useful available tools to deal with noncompatible land uses around airports and would penalize airports and people living near airports, without having sufficient effect on the non-airport jurisdictions which allow such land uses. The FAA would solicit broad industry and public comment on any proposals before pursuing such options.

AIRPORT NOISE—IG RECOMMENDATION ON INCOMPATIBLE DEVELOPMENT

Mr. CARR. The IG intends to recommend that FAA require airport sponsors to notify local jurisdictions that incompatible development after acceptance of the noise exposure map will not be eligible for Federal noise mitigation grants, and require sponsors to revise their airport noise compatibility programs to incorporate this policy. What do you think of this recommendation?

[The information follows:]

The FAA agrees with the recommendations and is considering such a policy. However, the FAA would not favor pursuing this recommendation without subjecting specific proposals to broad industry and public comment, including review by the Study Group on Compatible Land Use.

There are several concerns to balance. The FAA's focus is for its noise funding decisions to support to the maximum extent possible the goals of reducing existing noncompatible development and preventing additional noncompatible development in noise-impacted areas around airports. The FAA is uncertain whether the withholding of Federal noise grants would provide sufficient leverage to alter the land use practices of local jurisdictions that are not airport owners. The effect of such a policy would be felt most strongly by airport owners, who may have very limited influence over land development decisions, and by citizens living around airports, who may not have been fully cognizant of the noise problem when they purchased properties. An unintended side effect could be to encourage airports to delay preparing and publishing noise exposure maps, thereby postponing the date of ineligibility for new development until more development is in place and qualifies as existing development. This would obviously be counterproductive to Federal efforts to encourage airports to make known to the public the extent of the airport's noise-impacted area.

AIRPORT NOISE—MITIGATION MEASURES

Mr. CARR. What do you think of requiring that, at the time of sale, a covenant be added to deeds advising that the home is in a noise-impacted area and that Federal grants will not be used for mitigation measures?

[The information follows:]

The FAA encourages full disclosure to prospective buyers that homes are located in noise-impacted areas. Under current practice, such disclosure is provided by some jurisdictions as a matter of local prerogative. The FAA would want the opportunity to more fully consider the legal and practical implications of a Federally-mandated covenant disclosing noise-impacted areas before supporting such a recommendation.

The FAA believes that the withholding of Federal noise grants is worthy of further serious consideration. However, the FAA is not prepared to support such a recommendation without additional analysis and industry and public review in view of the complexity, sensitivity, and uncertain consequences of such a policy.

AIRPORT NOISE—CONGRESSIONAL LEGISLATION

Mr. CARR. As you know, this year the airport grant program is up for reauthorization. What specific measures could Congress include in that legislation to more effectively deal with this problem?

[The information follows:]

We believe that a proposal presently before the Congress would assist in more effectively dealing with this problem and has broad support by aviation interests and by representatives of communities affected by aviation noise. The Administration introduced in Section 118 of its AIP reauthorization bill the provision of land use compatibility and implementation grants to states and local jurisdictions around airports that are not airport sponsors. Comments submitted on this proposal by organizations represented on the Study Group on Compatible Land Use (e.g., ACI, ATA, NOISE) have improved upon this proposal and are included in Section 116 of the March 11, 1994 staff draft of Senate Bill 1491. (Section 116 additionally includes a requirement that such grants must be co-sponsored by the airport owner, which is a concept that we believe was inadvertently carried over from a previous draft and does not presently have industry, NOISE, or FAA support.)

PAY FREEZE RELATED TO EECF

Mr. CARR. For the past two years, we have acceded in conference to the Senate's wishes to deny pay raises and bonuses for any FAA employee involved in a substantial way in development of the expanded east coast plan. Can you tell us why the FAA can't seem to resolve this politically controversial and thorny problem?

[The information follows:]

In fiscal year 1990 Congress directed the FAA to prepare within 180 days an environmental impact statement (EIS) pursuant to the National Environmental Policy Act for the changes in aircraft flight patterns caused by implementation of the Expanded East Coast Plan (EECP) over New Jersey. In FY 1992 and 1993, Congress denied pay raises and bonuses, not to FAA employees involved in the development of the EECP, but to employees involved in any way with preparation of the EIS mandated in 1990. The Final EIS is currently under final review and should be issued shortly. Any decisions made as a result of the Final EIS will be an important first step to solve the problem. Once the EIS is completed, the FAA plans to work with the Port Authority of New York and New Jersey, the airlines, FAA, local land use control jurisdictions, and the citizens of New Jersey and New York, to attempt to develop more comprehensive solutions for this problem.

As you note, the problem is politically controversial and thorny. Since the busiest airspace in the world overlies the most densely populated state in the country, aircraft must overfly some populated areas to reach other destinations. The system of air traffic routes and procedures in the New York metropolitan area is complex and interrelated because there are three major airports located within two minutes flying time of each other. Five to six thousand air carrier and general aviation flights a day fly through the airspace below 12,000 feet within a 55 mile radius of LaGuardia Airport. This local air traffic system is part of the larger system of routes and procedures implemented as part of the EECP over a 20-state area.

The FAA afforded extensive opportunities for public participation during their process. Through this process the parties began building consensus among the affected communities on how noise should be distributed to support implementation of any major proposal to restructure the airspace. The FAA will continue to work with the interested parties to cooperate, resolve their fundamental disagreements, and develop mutually satisfactory solutions. We hope to restore the trust and confidence of New York area residents.

From a policy perspective, the ultimate solution may be difficult because it will require the FAA to balance its roles of promoting aviation and environmental quality. This will mean weighing potential impacts on the industry, the traveling public, and on environmental quality. In confronting the environmental issues, the FAA faces scientific, economic, and political uncertainties.

EFFECTIVENESS OF RELIEVER AIRPORTS

Mr. CARR. Over one year ago, the Inspector General issued a report claiming that funds for "reliever" airports were not being effectively utilized since the airports were not drawing much traffic away from the congested commercial service airports. In response, the FAA conducted a comprehensive evaluation of the reliever airport program to determine its effectiveness. What were the findings and recommendations of this evaluation?

[The information follows:]

The FAA is coordinating a draft of its evaluation of the reliever airport program with the Inspector General in order to resolve significant issues, such as how best to measure the success of the reliever program. The evaluation should be finalized this summer at which time its conclusions and recommendations will be made available.

RELIEVER AIRPORTS—FAA REVIEW

Mr. CARR. You were planning to complete this comprehensive evaluation by October 31, 1993. The FAA chief of staff advised the IG that the evaluation had been completed, but would not be issued until final review by FAA management, which was anticipated by March 31, 1994. Has that review been completed?

[The information follows:]

The FAA has provided a draft report on the reliever evaluation to the Inspector General for coordination. We will issue a final report when the coordination is completed.

RELIEVER AIRPORTS—REDUCTION IN SET-ASIDE

Mr. CARR. The administration's aviation reauthorization proposal would drop the set-aside for reliever airports from 10 percent of AIP funds to 5 percent. Why do you make this recommendation? [The information follows:]

The Administration's proposal would allow us to direct AIP funds within the general aviation category toward requirements we can document as most urgently needed in the Airport Capital Improvement Plan (ACIP).

The statutory set-aside for reliever airports represents a minimum level of aid; high priority projects at relievers can still compete for additional discretionary funds.

Reliever airports would, as in the past, continue to have access to discretionary funds, State apportionments, returned entitlements from the passenger facility charge program, and other categories.

We believe that the reliever airport system is well established as a result of substantial investments in recent years. Therefore, we have proposed a reduction, relative to other airports, to ensure that more critical needs can be met.

A reliever set-aside of 5 percent of annual AIP funds will ensure sufficient discretionary funding to support higher priority work identified in the Airports CIP.

IG AUDIT—AIRPORT SECURITY ACCESS CONTROLS

Mr. CARR. In a recent audit, teams from the Office of the Inspector General tested the security systems at some of our largest U.S. airports by attempting to enter secure areas as unauthorized persons. Their report details what appear to be shocking lapses of security at our airports. The investigators were able to enter secure areas 75 percent of the time (15 out of 20 attempts). In one case, the auditors walked right onto an aircraft unchallenged and placed a note under a passenger seat. Of course, this could have been an explosive device or a gun. What were the IG's recommendations, and what is the FAA's response?

[The information follows:]

The Inspector General recommended (1) that the FAA aggressively and thoroughly test access controls, challenge procedures, and proper display of identification to ensure airports and air carriers comply with security programs for safeguarding aircraft, passengers, and property in Air Operations Areas and terminals; and (2) report the material internal control weaknesses cited in the report to the Secretary of Transportation as required by the Federal Managers' Financial Integrity Act of 1982.

In response to the first recommendation, the FAA has taken aggressive action to improve security practices at U.S. airports. Access control is the top domestic security priority and the focus of special inspections at airports. FAA has developed a new three-phase process for conducting inspections of access control, ID display and challenge procedures. FAA has increased industry awareness of problem areas, provided information to system users, including unions members, and pinpointed specific areas requiring correction. Progressive enforcement action has also been part of this effort. Subsequent phases call for continued scrutiny of compliance with security requirements.

Since the new focused effort was begun in January 1994, compliance with ID display and challenging requirements has improved markedly. Problem access points have been identified, and immediate corrective actions have been taken. Attention has been given to reducing the number of false alarms occurring at unmanned access points.

Present statistics show ID display at 96 percent, challenge at 90.6 percent and the effectiveness of access control points at 97 percent. The FAA has developed a prototype validation process, which was field tested in Dallas/Fort Worth and Houston airports. It will be used in San Juan later this month. Once the San Juan test is completed, the process will be used in all major airports, for consistent evaluation of security effectiveness.

FAA has conducted more than 225 meetings with industry representatives and has gained their strong support for implementing effective security. The responsive-

ness of airlines, airports, tenants, and their employees have been the key factor in strengthening security.

The FAA agreed with the Inspector General's second recommendation and reported the airport security weaknesses in the September 30, 1993, Federal Managers Financial Integrity Act submission to the Secretary.

ACCESS CONTROL—TESTING AT AIRPORTS

Mr. CARR. The IG recommended that the FAA take aggressive action to thoroughly test access controls. Do you think the FAA should regularly test the system, as the IG investigators did, and if so, who should perform that activity, the FAA or the IG?

[The information follows:]

The FAA now recognizes that aggressive testing of the civil aviation security system, in conjunction with airport and air carrier security inspections, is critical to ensuring that security measures are being applied effectively and appropriately. FAA has developed a testing protocol for access systems and is using it at several of the nation's busiest airports. FAA will implement this nationwide beginning in May 1994. FAA will design testing protocols for other security program areas as well. Testing by the Office of the Inspector General is a useful way of independently verifying the effectiveness of security and identifying vulnerabilities or lapses that should be corrected, but the primary responsibility for testing should properly rest with the FAA.

ACCESS CONTROL—FREQUENCY OF TESTING

Mr. CARR. How much testing is enough, in your view? For example, how frequently should airports be tested, and should that vary by airport size or other factors?

[The information follows:]

The FAA believes that it is inappropriate to establish a fixed number of required tests of the security system. Rather, testing frequency should be determined by the results of the previous tests, results of inspections, and the forcefulness with which the airports, tenants, and airlines have addressed problems previously identified. Special events, such as the Summer Olympic Games, could also call for increased testing, to ensure that employee attentiveness to security is high. FAA intends to provide testing protocols to the aviation industry so that air carriers and airport operators will also be able to evaluate how well security measures are being implemented.

ACCESS CONTROL—PREVENTION OF "PIGGYBACKING"

Mr. CARR. The most common security violation cited in the IG report was the practice of "piggybacking," where a person without proper identification (for example, an IG auditor) follows a badged individual through a secured access door or gate before the door closes. In the Munich, Germany, airport, piggybacking is prevented by the use of revolving security doors. A door on a cylindrical chamber slides open one quarter turn to allow only one person through at a time. Should such a system be required in the United States, to address this problem?

[The information follows:]

The FAA and airport operators have been evaluating a number of approaches to eliminate the instances of "piggybacking". Some of the most effective have been the use of revolving doors, turnstiles, and posting a guard at heavily used access points to ensure that one person enters at a time. FAA allows airport operators to choose the approach which best suits their physical layout and activity level, as long as it effectively addresses the problem. Employee education has also proven critical to resolving this problem, and FAA has been meeting with numerous groups of employees at airports to ensure that they understand how the security system works and what role they play in that system. The FAA does not yet believe that it is necessary to insist on a solution as expensive and complex as turnstiles.

ACCESS CONTROL—INDIVIDUAL ACCOUNTABILITY

Mr. CARR. Under current rules, if someone gets into a secured area without proper authorization, it is the airport operator and not the individual which is fined. Should this be changed, to put the onus on the back of the individual committing the violation?

[The information follows:]

The FAA has tried to ensure that individuals who are employed at or need to be on an airport share the responsibility for security. The FAA also has some limited regulations covering individuals who gain access to a secured area without proper authorization. However, under FAR 107 and 108 the airport or the air carrier is directly responsible and fined for violations, although airports sometimes do pass along fines to airport tenants, including air carriers and fixed base operators. The FAA's focused inspections on access control and challenge requirements have demonstrated how important individual responsibility is, and how much security improves when air carriers or airports provide both incentives and punishments for employees who respectively observe or violate security rules. In the forthcoming revisions of FAR's 107 and 108, the FAA will aim to strike the right balance between corporate and individual responsibility.

AIRPORT SECURITY COORDINATORS—GAO REPORT

Mr. CARR. In a recent GAO report, it was found that airport security coordinators—the officials responsible for security—at high threat ("category X") airports did not have access to important security information because they do not have security clearances. Therefore, according to the GAO, "FAA cannot tell these officials about security threats or share airport assessments with them." Isn't it foolish for the government to have important security information and not be providing it to the airport-based managers who could deploy security forces in response to those threats?

[The information follows:]

The FAA has begun to obtain security clearances for security coordinators at category X and I airports. Interim security clearances will be issued to Airport Security Coordinators and law enforcement supervisors beginning in May 1994. Final security clearances should be completed by September 30, 1994. The cooperation of the airport personnel in promptly completing personal history forms (required as the basis for background checks) is essential to meet the goal.

FAA/FBI AIRPORT VULNERABILITY ASSESSMENTS

Mr. CARR. What is your response to the GAO's recommendation that the FAA should develop, in conjunction with the FBI, information on threats (and individuals with the capability to carry them out) for the 19 category X airports and a plan to reassess the airports' security in light of that information? In your view, are such reports needed?

[The information follows:]

The FAA believes that the recent joint FAA/FBI threat and vulnerability assessments are valuable, but the program can be improved. The FAA is working with the FBI to determine how to provide for continuing and more accurate assessments. The FAA will use threat assessments and analysis of vulnerabilities in airport security and derive plans of action for needed corrections. A new methodology to accomplish this will be completed by December 1994—and at that point we can begin applying this new methodology to category X airports.

FAR 107 AND 108 REVISIONS

Mr. CARR. I understand the FAA is currently reviewing its primary regulations dealing with airport security (FAR parts 107 and

108). What are the objectives of your review, and what is your schedule?

[The information follows:]

FAR's 107 and 108 have been amended several times under crisis conditions, and the first objective of the rewrites is to create updated, consistent regulations. In FAR 107, this will be done by addressing training, background check, personnel and vehicle identification requirements for unescorted access to different sections of airports. In FAR 108, the FAA will incorporate many of the requirements currently in air carrier security programs. Additional objectives are to make security regulations more effective through corporate and individual accountability, to improve access control and challenge requirements, and to extend certain rules to some private charters and helicopter operations. After holding a number of meetings with industry and public interest groups through the Aviation Security Advisory Committee, the FAA is now drafting a Notice of Proposal Rulemaking scheduled for publication in the Federal Register in October 1994. After a comment period and public hearings, FAA will draft and publish a Final Rule to be effective in mid-1995.

UNIVERSAL ACCESS CONTROL

Mr. CARR. Last year, we added \$2 million to your research and development budget to begin the development of the transient crew security system. What is the FAA's opinion of the need for this type of system?

[The information follows:]

The FAA believes that a Universal Access System (UAS) is needed. First, local access control systems inhibit the movement of transient air carrier employees (not just flightcrews) at certain areas of the airport. While this may cause some minor delay, FAA is more concerned that employees will attempt to circumvent or even violate these controls, thus degrading security. Second, the lack of such a system can decrease security and create inefficiencies; for example, a multiplicity of IDs can degrade the effectiveness of challenge requirements on the ramp, and the lack of an alternative way to reach the aircraft forces screeners at the checkpoint to deal with flightcrews and employees, rather than passengers. Third, the FAA notes that industry unanimously supported such a system twice in the past—when the FAR 107.14 rule was first published, and then in May of last year when the Aviation Security Advisory Committee unanimously urged its implementation with dedicated federal funding. While mandated implementation without such funding remains controversial, FAA's decision to allow implementation to take place at a schedule chosen by the industry, whose representatives have met monthly with FAA on UAS, and to focus on development of standards have garnered support. Finally, FAA notes that UAS standards will be identical to or at least compatible with standards being developed to replace FAR 107.14 systems, which should introduce potential cost savings for future access control systems. For all these reasons, the FAA believes that UAS—and its approach to developing UAS standards—will be of significant benefit to both security and the industry.

Mr. CARR. Can you estimate the total cost to develop such a system?

[The information follows:]

FAA does not have a firm estimate on the total cost of UAS implementation. The cost of UAS depends mostly on the number of access points that are UAS-equipped, and since implementation will be voluntary, the number of points could vary. Further, the cost vary considerably depending on whether UAS "stands alone" or is integrated with the existing FAR 107.14 systems. The FAA has used a portion of the \$2 million allocated to have the Volpe Transportation Systems Center research UAS alternatives and costs. Some cost estimates have been developed based on the research already done by Volpe, but a reliable cost estimate will not be available until the prototyping test is completed.

FLIGHT CREW ACCESS SURVEY

Mr. CARR. The Airline Pilots Association claims that the lack of a universal access system such as TCSS has caused delays in flight crews getting into their aircraft. However, a 1993 site survey con-

ducted by AAAE concluded that such delays were minimal. Does the FAA have any data to indicate the extent of these delays?

[The information follows:]

The FAA agrees that delays at jetway doors do not appear to be excessive, but the FAA still supports a universal access system for different reasons. From November 14, 1992 to December 2, 1992, FAA field personnel surveyed 18 Category X and 43 Category I airports. They observed flightcrews accessing their aircraft for outbound flights, and recorded data on access time, the crew's company, and type of jetway security control. Based on 1,093 observations (476 at Category X and 617 at Category I airports), 60 percent of the flightcrews observed had immediate access, 78 percent waited for less than 1 minute and 98 percent waited five minutes or less. (At Category X airports, 49 percent gained immediate access and the average access time was 1.6 minutes; at Category I airports, 65 percent gained immediate access and the average wait was 1.3 minutes.) Air carrier station managers were also interviewed at 17 Category X and 36 Category I airports, with parallel results: 36 percent of managers reported that crews normally have immediate access, 60 percent reported that crews waited less than 1 minute, and 92.5 percent reported that crews waited less than 5 minutes.

AAS REVIEWS—FINDINGS

Mr. CARR. Needless to say, much has happened in the advanced automation system (AAS) program since our special hearing last year on the program. On December 13, 1993, you notified Congress that AAS was facing major problems including a potential new cost overrun of \$1.2 billion. To investigate the problem more fully, you commissioned: One, an in-house review of the program's cost and schedule estimates, led by Deputy Administrator Linda Daschle and General Counsel Mark Gerchick, and, two, a comprehensive, independent assessment of the program by the Center for Naval Analysis. Let's talk about each of these studies in turn. First, what were the major findings of the in-house review of schedule and cost?

[The information follows:]

The major findings of the in-house review of cost and schedule are grouped by AAS segment. For ISSS, the review team concluded that schedule delays could be from 9 to 31 months if we do not change our approach and that the resulting cost growth ranges from approximately \$138 million to \$248 million. This projected schedule slip is based upon risks associated with the software development and test risk. The likelihood of a slip is further compounded by the lack of IBM resources needed to accomplish all remaining work on schedule. The team did report that the solution for the continuous operations task will cost less than the program office estimate.

The review team believes that a longer schedule than the Program Manager estimate will be required for Terminal Advanced Automation System (TAAS) completion, especially for TAAS Phase II, with TAAS costs growing by about \$117 million. The team was concerned by the low IBM staffing levels and programmer experience and by the software volatility. Also, additional delays are possible based on the TAAS relationship with ISSS. Continuous operations will also be an issue with TAAS.

Area Control Computer Complex (ACCC) was projected to experience a significant slip in schedule, according to the in-house review team, with a corresponding cost growth of approximately \$370 million. The team assumed an increase in the amount of software required for the segment. Continuous operations, however, should be less of an issue for ACCC since the redundant system would not require the same reliability as the primary system. The team believes that Automated En Route Air Traffic Control (AERA) costs are underestimated by approximately \$129 million.

For Tower Control Computer Complex (TCCC), the lack of funding affects the segment's schedule by a day-for-day slip. The review team found no risks to the schedule other than the funding issue for the TCCC Type 3 system.

For AAS as a whole, the review projected possible risks amounting to a cost ranging from \$6.5 to \$7.3 billion.

The final CNA report has not been completed. I will address this question when it becomes available.

AAS—REPLAN COST ESTIMATE

Mr. CARR. I am told that, of the \$1.2 billion estimated overrun, about \$750 million would be for the "replan" of the initial sector suite system (the first major part to be fielded). Last year, Mr. Del Balzo estimated an overrun of no more than \$93 million, and said the FAA hoped to avoid "some or all" of that cost in negotiations with the contractor. How could he have been so far off in his estimate?

[The information follows:]

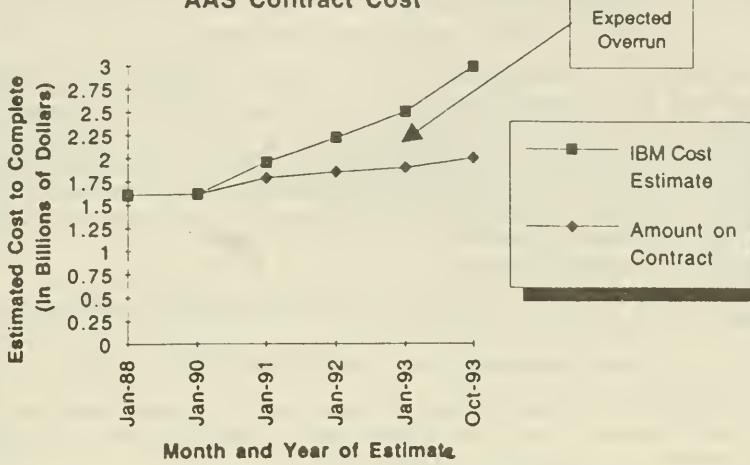
Last year we believed that there was an estimated \$707 million in cost overrun. We had hoped to offset all but \$235 million of the overrun through a decrease in IBM profit, use of program reserves set aside for cost overruns, and use of funding set aside to fund fixed price incentive contract line items at the ceiling cost rather than the contract target price.

When the proposal was received in August 1993, the costs were greater than we had anticipated, and we found that all profit was already lost. We can not use funding set aside to fund fixed price incentive contract line items at the ceiling cost because those costs have not yet been recognized. Also, it is premature to use all program reserve for cost growth with so much of the program still ahead of us. For these reasons, the cost growth due to the delay rose from \$235 million to \$780 million.

AAS—NOTIFICATION OF COST OVERRUNS

Mr. CARR. DOT's Major Acquisition Policies and Procedures manual requires a program manager to "actively monitor contractor performance" and "provide candid and timely assessments of program status and risk in all briefings and presentations to higher authorities." As the following chart shows, IBM began reporting significant overruns in early 1990, and the magnitude of the forecast overrun kept growing. This information was not conveyed to the Congress. Are you telling us that the program manager kept this information to himself, never advising his superiors about the potential problem?

[The chart and information follow:]

AAS Contract Cost

Analysis of monthly cost performance reports, the results of which were published monthly and provided to all oversight organizations within the FAA and the Department, predicted program delays and cost growth. These analysis were discussed during the quarterly Major Systems Acquisition Reviews with senior FAA management.

CNA—REVIEW AND FINDINGS

Mr. CARR. I understand that the Center for Naval Analysis has completed their work also, although it has not been formally presented. You said that this report would "provide an in-depth analysis of work completed to date and a prognosis for this program." You expected CNA to suggest "realistic recommendations for controlling costs and managing the program." What were their major findings and recommendations?

[The information follows:]

The final CNA report has not been completed. I will address this question with the Committee when it becomes available.

AAS—IMPLEMENTING CNA RECOMMENDATIONS

Mr. CARR. To what extent do you plan to implement the recommendations of the CNA report, and where you are not following their advice, can you tell us why not?

[The information follows:]

The CNA report is only one of several reports that are being considered in developing our recovery plan. The AAS Recovery Team is currently integrating the results of these reports with additional technical information and legal, contract, and cost options analyzed to determine the best program approach. The results of the Recovery Team's efforts are expected by the end of May. If these results are different from the CNA report recommendations, that rationale will be provided.

AAS—TIMETABLE FOR FUTURE DECISIONS

Mr. CARR. In your summary of the in-house report, you say the overruns and delays estimated by this report are unacceptable, and "I cannot allow the report's troubling predictions to become a reality. Immediate action is clearly needed."

Now that both of these major reviews are complete, and you have a new program manager in place, can you give us an overall timetable for further decisions on the AAS program?

[The information follows:]

Initial decisions will be made following completion of the Recovery Team's study. We expect these decisions by the end of May.

AAS—REACHING DECISION ON PROGRAM

Mr. CARR. Since you are now spending close to a million dollars a day on a Loral contract which could be significantly changed or even terminated, don't you have an obligation to move very quickly?

[The information follows:]

Yes, we do. We believe we are moving very quickly, but not so quickly as to produce flawed results. We have proceeded in a systematic manner looking at all aspects of the program—cost, schedule, requirements, architecture, etc. We have begun the final step by establishing a high-level Recovery Team composed of top FAA and DOT managers whose charter is to review all of these data and to recommend courses of action in all three areas—enroute, terminal, and tower. Results of this team's analysis and recommendations will be used to develop our restructured approach to the AAS. Our target for the initial AAS decisions is early June.

AAS—PREVIOUS MANAGEMENT DEFICIENCIES

Mr. CARR. You have recently hired a new program manager for the AAS program. In your view, what were the main management deficiencies of the previous team, and what gives you confidence that the new manager (Mr. Bob Valone) will not fall prey to the same weaknesses?

[The information follows:]

There were a number of areas that contributed to the management problems in this program including the location of the program office in the organization, the lack of involvement of senior management of FAA in the program decisions, the structure of the program office, and the lack of enforcement in the program office to 1) the establishment of cost, schedule and technical baselines and 2) the development of processes to monitor and track the program baselines.

We have taken several steps to strengthen the management of the program. Mr. Valone reports directly to the Administrator. Senior FAA management is involved on a continuous basis in the decisionmaking process. We have brought in a strong deputy program manager to support Mr. Valone and they have the responsibility and authority to develop the program office organization structure needed to manage this program. This and Mr. Valone's proven record of establishing program baselines and successfully managing to those baselines gives us confidence in our ability to successfully complete this program.

AAS—NEW MONITORING TECHNIQUES

Mr. CARR. In particular, it seems apparent that greatly improved monitoring systems are needed for this program. For example, according to your report, in IBM's bid for this contract, the company estimated that each computer programmer would be able to produce about 200 lines of new code per month. For most of the program, however, they were only producing 80 lines per month. This slowdown in efficiency required them to either hire more programmers or delay the schedule, either of which costs more money. Time and time again, the FAA's monitoring systems were unable to see this problem coming. What new monitoring techniques are you planning to put in place?

[The information follows:]

We have taken several steps to strengthen the management of the program. Senior FAA management is involved on a continuous basis in the decisionmaking process. We have brought in a strong deputy program manager to support Mr. Valone and they have the responsibility and authority to develop the program office organization structure needed to manage this program. This and Mr. Valone's proven record of establishing program baselines gives us confidence in our ability to successfully complete this program.

At the same time, Mr. Valone is leading the Recovery Team effort to evaluate the en route, terminal and tower portions of the FAA plan for decision by Mr. Hinson, he is also evaluating what new software process metrics will be required to effectively monitor the software progress. At present, it is true that IBM has billed high costs for the amount of software delivered for testing. The new metrics being evaluated will clarify both their future progress and productivity as well as the functional quality of this code. In the future, these processes would clearly identify software problems in a timely fashion.

AAS—PERFORMANCE OF SUPPORT CONTRACTORS

Mr. CARR. Why didn't the plethora of support contractors on the AAS program, including Martin Marietta, TRW, and Mitre, provide adequate monitoring assistance? How would you rate the overall performance of these support contractors?

[The information follows:]

Martin Marietta, TRW, and Mitre provided support to the various technical teams, such as system engineering, software, test, etc. The contractors were not tasked to integrate all of the various technical areas into an overall assessment.

The whole aspect of contractor support is being reevaluated and reviewed. After the decisions are made as to what the future AAS program will be, a resource plan, including contractor support will be developed.

AAS—LORAL'S PROPOSAL TO RESTRUCTURE CONTRACT

Mr. CARR. I understand that Loral Corporation, which inherited the AAS program when they purchased IBM's Federal Systems Company, has made a proposal to you for restructuring the contract which would put the first segment on a "fast track" and defer most of the remaining segments. What is your overall reaction to their proposal?

[The information follows:]

The ISSS "fast track" approach has appeal and is being considered by the Recovery Team. While the fast track proposal does not move the Seattle ORD date forward, it does reduce the risk in achieving an operationally acceptable system at Seattle.

AAS—LORAL VS. CNA PROPOSALS

Mr. CARR. In what ways does their proposal differ from the recommendation of the Center for Naval Analysis?

[The information follows:]

The CNA report has not been received, and it is not expected until May. Both reports will be considered by the Recovery Team.

AAS—LORAL VS. FAA SCHEDULE

Mr. CARR. Loral believes they can make the first system operational with only a 7-month delay, compared to today's approved schedule. This is in stark contrast to the "most likely estimate" of your own in-house review, which concluded that the first system required a 30-month delay. What accounts for such a big difference between their estimate and yours?

[The information follows:]

Loral has not completed their internal audit of the AAS program; therefore, we cannot provide a complete answer to your question. It would be noted that the in-house cost/schedule review identified a range of possible ISSS delays from 9 to 31 months if the approach was not changed. The Recovery Team that is currently reviewing the entire en route, terminal, and tower efforts will include the Loral information as part of their analysis. The recommendations due by the end of May will provide new schedules for the programs.

AAS—LORAL'S "FAST TRACK" APPROACH

Mr. CARR. Are they talking about delivering a fully functional system, or would more upgrades be required after April 1997, and if more work is required later, is it really fair to call theirs a "fast track" approach?

[The information follows:]

Loral's Fast Track approach proposes an earlier delivery, but is not proposing moving the Seattle Operational Readiness Date forward. Rather, the advantage is that it has the potential of providing a fully functional system with less risk. They propose that the Government not accept the system until it is fully functional. This does not mean that upgrades won't be required on a periodic basis as can be expected with any software intensive system.

AAS—LORAL'S COST ESTIMATE

Mr. CARR. On the subject of cost, your in-house study came up with a "most likely" total program cost of \$6.9 billion. Loral says they can do the program for less than \$4 billion. How would they do the job for so much less than your team estimated?

[The information follows:]

We do not have any details on Loral's \$4 billion estimate; however, it is our understanding that it included only contract costs, and they did not include non contract costs such as AERA 2, facility construction, training, engineering support contractors, operational test and evaluation (OT&E) testing costs, etc. These costs are included in our \$6.9 billion estimate.

AAS—LORAL AND DEVELOPMENT AND DEMONSTRATION FACILITY

Mr. CARR. Loral's approach also places a priority on getting the prototype system into the hands of controllers so that their concerns could be included in the final design. Are they aware of the operations of the Development and Demonstration Facility (DDF), which has had hundreds of controllers testing the AAS design since 1991?

[The information follows:]

Yes, Loral is very much aware of the type of work accomplished at the DDF, however the scope of the testing done at that facility differs from that being proposed by Loral. Under Loral's concept, the ISSS would be used in a "shadow mode" in Seattle which would subject it to real, not simulated, conditions.

This is important in two areas. First, the initial integration with existing NAS systems would allow us to verify the interoperability between systems and would begin to allow the maintenance workforce to gain experience in working with the system. Second, after the system was installed, checked out, totally operational and stable, the controllers would be given a chance to experience the system in an operational environment. This combined plan should reduce the risk of new problems being identified during formal testing.

AAS—ADDITIONAL CONTROLLER FEEDBACK

Mr. CARR. From the studies I have seen, one of the problems with AAS is that too many controllers have been giving their input on the system design, which has caused software to be changed over and over again. It would seem that Loral's approach would not improve that situation, and might make it worse. How can we expect to freeze requirements while at the same time allowing controllers to continue making design changes?

[The information follows:]

We believe customer (i.e., controller) feedback to be extremely important to achieving an operationally useable system. However, we do recognize that any design changes resulting from controller feedback must be controlled. We have established a review board to perform this control task and have involved FAA's top management to oversee the board's recommendations. Furthermore, we are convinced that the design changes resulting from problems that the controllers have uncovered are necessary system fixes to ensure the operational suitability of the AAS.

AAS—ACCELERATED DEPLOYMENT

Mr. CARR. The AAS program office advised the Office of the Secretary in a November 1993 briefing that IBM's key workers on this program were "overworked" and "tired." Loral has now inherited that work force, and believes they can accelerate deployment of the system to the first site (Seattle), far in advance of what the FAA's in-house study believed was possible. If the work force is already

overworked and tired, doesn't it strain credibility to believe the development can be accelerated?

[The information follows:]

Loral has not suggested an acceleration of the old schedule. Their concept for early deployment to Seattle is based on delivery for early site evaluation prior to completing all of the previously planned testing at the FAA Technical Center in Atlantic City. Loral's concept does not claim the operational readiness date (ORD) in Seattle can be moved forward.

AAS—ACCC/AERA

Mr. CARR. I have heard that the area control computer complex might be dropped from the AAS program. Isn't this the computer that would provide the fuel savings benefits that the airlines want? Could the so-called AERA (advanced en route automation) benefits be implemented without this computer?

[The information follows:]

The current en route ATC automation system must be upgraded in order to accommodate AERA's flexibility, graphical user interface, and computationally intensive algorithmic structure. One alternative under consideration is to build AERA as a functional upgrade to the ISSS segment of AAS. Alternatives to an ISSS based solution are also being considered to provide the benefits of AERA and other such en route automation enhancements.

AAS—NEW TRACON SYSTEM

Mr. CARR. In a briefing to the subcommittee staff, it was indicated that the New TRACON System, the computer replacement for the majority of your TRACONs, might not be considered part of the AAS program, even though the TRACON requirement has always been part of AAS. Is this accurate, and if so, why are you removing that requirement from the AAS program?

[The information follows:]

Currently, the Recovery Team is looking at all options for the FAA to recommend the best solution(s) for the en route, terminal, and tower efforts. This review will consider not only technical feasibility, but also the cost and schedule impacts of possible solutions.

AAS—RESTRUCTURED WITHOUT ACCC/NEW TRACON SYSTEM

Mr. CARR. If both the ACCC and New TRACON System are removed from the AAS program, it would be logical to think that you could accomplish the AAS program more quickly and at lower cost, since you have made the program smaller. However, this wouldn't be the result of hard technical or contract decisions, but instead from making the program smaller, and doing some of this work in other parts of the budget. To the extent you do this, wouldn't it make your restructure look a bit dishonest?

[The information follows:]

The Limited Consolidation Decision changed the amount and type of automation equipment needed. The 23 large ACF's with full backup capability are no longer required. However, under the Limited Consolidation Plan, after AAS is complete we will still have approximately 170 TRACON's with 1960-1970 technology equipment still operating. We have been up front with this and have never tried to hide the fact that, under Limited Consolidation, AAS will not modernize all ATC Automation systems. The Recovery Plan will clearly identify our plan and new costs resulting from changes in ACCC.

Since the TRW assessment last May, ISSS has completed the planned 5 checkpoints. However, we are reviewing the ISSS program, including the architecture, as part of the Recovery Team effort to assure ourselves that it is indeed viable. The

Recovery Team will be making a number of hard technical and contract decisions in its recommendations.

AAS—ISSS ARCHITECTURE

Mr. CARR. Some have even questioned whether the fundamental architecture for ISSS provides a good foundation for a long-term automation program. For example, an independent assessment by TRW dated May 1993 concluded the following: "the viability of the ISSS architecture is predicated on the successful outcome of ongoing stress tests * * * previous versions of the ISSS software have evidenced instability, i.e., crashes, which impacted development and test and undermined confidence in the soundness of the design * * * this instability is due to errors in the system services software, a critical and complex layer * * * the IBM system services design incorporates commercial software which, as is often the case, has not always lived up to its advertisements."

An update in November 1993 concluded that the same problems "weaken the case that this architecture will be the correct basis for all future developments." They say "there are many reasons for moving to a new architecture at some future date." Given such reports, why should we even continue the ISSS program? If the underlying software is a poor foundation, why does it make sense to continue building on top of it?

[The information follows:]

The advanced automation system (AAS) architecture was required to meet complex and demanding functional and availability requirements.

AAS requirements are being revalidated as part of the review of the program. We are also reviewing the ISSS architecture as part of the Recovery Team effort to assure that it is indeed viable.

AAS—CNA CONCLUSION ON SOFTWARE ARCHITECTURE

Mr. CARR. Didn't CNA conclude that the existing software architecture was too heavily dependent on IBM-unique products, which would make the FAA dependent on them for years to come for very costly software (and hardware) maintenance?

[The information follows:]

CNA has not submitted their final report and we do not expect it until mid May. We are aware that the AAS uses many unique IBM products and our future plans will consider changes necessary to make the AAS more "open."

AAS—TRW REPORT ON SYSTEM SOFTWARE

Mr. CARR. According to the TRW report, it became clear in late 1992 that the systems software for this program was unstable. Given this, do you know why Acting Administrator Del Balzo told the Public Works Committee last year "I think the architecture we have deliberately chosen will give us the flexibility without undue complications"?

[The information follows:]

I do not understand the basis of Mr. Del Balzo's statement. I have tasked CNA to review the architecture to ensure that it is valid.

AAS—PREVIOUS FAA TESTIMONY

Mr. CARR. Mr. Del Balzo also told the Public Works Committee the following during their March 10, 1993, hearing: "We have not

just fixed the problems. We fixed the problems back in 1990 when we absorbed the 19-month delay. We fixed the problems to get us back on schedule. We did something different this time. We didn't just fix the problems. We fixed the cause of the problems * * * we have fixed the decision-making process on this program. We have instituted requirements discipline, and we have a commitment to manage both schedule and cost * * * These problems will not occur again" (p. 23 and 36).

We now know from your studies that neither the problems nor their causes were fixed, that requirements were not disciplined, and there was little attention to controlling cost growth or schedule delays. What is this committee to think about the credibility of the FAA's leadership when such statements are made in congressional hearings?

[The information follows:]

The senior management that testified before this committee in March 1993 is no longer with the FAA.

A few months after taking office in August 1993, Administrator Hinson learned that this program was facing additional cost overruns. In response, he ordered a top to bottom review of the program. This included not only internal reviews, but the Center for Naval Analysis (CNA) was retained to provide an independent assessment of the organizational, management, and financial aspects of the program.

To determine if there was potential for further cost overruns and schedule delays, he directed the Deputy Administrator and Chief Counsel to conduct a comprehensive review of the costs and schedules for the program. This report concluded that if this program was permitted to continue on the course it was on, costs could range from \$6.5 to \$7.3 billion and substantial additional delays could be incurred. That was clearly unacceptable.

Since that report was released, Administrator Hinson has taken additional actions. The program director has been replaced. Funding for work on the Area Control Computer Complex portion of the program has been suspended. A revalidation of requirements for the program is nearing completion. These actions and the information provided by the various reviews will provide the basis for putting this program back on a course that is fiscally responsible and where schedules are achieved.

Findings of reviews that have been completed, such as the cost and schedule review, have been immediately shared with Committee members and staff. This administration is pledged to keep you fully apprised of further results as soon as they become available.

AAS—STATUS REPORT

Mr. CARR. Mr. Hinson, you sent status reports on the AAS program to the Public Works Committee as late as September 1993 without any hint of cost problems. When questioned about this later, your Executive Director for System Development (John Burt) said that the FAA did not become aware of the cost to restructure the contract until after those reports were sent up. However, I have heard that there was an informal agreement between FAA and IBM contracting officers on the magnitude of the cost overrun as early as the end of August 1993. Do you have any information on this?

[The information follows:]

In September 1993, the magnitude of the contract cost overrun related to existing schedule delay was quantified as part of the negotiations necessitated by the "cure process" completed the previous March. The negotiated overrun was \$741 million, which compares with the FAA estimate in March 1993 of \$707 million.

The cost of the negotiated contract changes is only a part of the projected program cost growth of \$1.2 billion. The majority cost growth resulted from changes in basic assumptions that we used to offset cost growth estimate last March and new requirements that were not known last year. This full cost impact was not developed

until late in the fall. Upon realization of this possible cost growth, the Administrator promptly informed Congress in his December 13 letter. The earlier reports were simply on the status of IBM's progress on specified checkpoints. We will work with you to develop a reporting system to keep you informed of the AAS cost and schedule.

AAS—TERMINAL AREA AUTOMATION SYSTEM

Mr. CARR. The terminal area part of AAS is called the terminal area automation system (TAAS.) Currently, this system is expected to replace automation equipment in the large TRACONs, the so-called "metroplex control facilities." Isn't this system also dependent on the IBM-developed systems services software, which was the subject of TRW's concern?

[The information follows:]

Yes, TAAS is dependent on ISSS system services software. However, system services represent less than 20 percent of the TAAS developed software. Currently, TAAS, as well as the en route and tower efforts, are under review by the Recovery Team to assess their viability for the future of FAA in these areas. This review will be the basis of whether TAAS will be continued and if so, in what form.

ASS—TAAS PROBLEMS

Mr. CARR. Regarding this part of AAS, TRW said "eventually, if TAAS goes the way of similar real time systems, there will probably be performance problems." What kinds of problems were they referring to, and is there a way to minimize them by taking action now?

[The information follows:]

Currently, TAAS, as well as the en route and tower efforts, are under review by the Recovery Team to assess their viability for the future of FAA in these areas. This review will be the basis of whether TASS will be continued and if so, in what form.

AAS—ACCELERATING TAAS DEVELOPMENT

Mr. CARR. TAAS is that portion of AAS which would go in the large TRACONs. Because of the lengthy delays in the AAS program, you began replacing the existing computers in those five facilities with brand new ARTS IIIE computers in fiscal year 1993. These will last for at least 10 years.

Now Loral believes we should put development of the TAAS system on a "fast track" also, having them in place beginning in 1996. However, you won't even finish delivering the ARTS IIIE computers which AAS replaces until 1997. Given the brand new ARTS computers, one could question why we need TAAS at all and we should even more seriously question why we should put the development on an accelerated schedule which requires us to junk the new ARTS computers after only a few years, or perhaps not use them at all. Would you comment?

[The information follows:]

The FAA does not plan to "accelerate" TAAS. As you have noted, developmental risks exist for TAAS and that is why we began implementation of ARTS IIIE equipment. As part of the AAS recovery, we will determine how many (if any) AAS TAAS options or ARTS IIIE options to exercise.

REVISED AAS—FUNDING ESTIMATE

Mr. CARR. You are requesting \$509.9 million for AAS in fiscal year 1995. Can I assume, with all the change in this program, that

you will offer a new budget estimate in the near future, and if so, when can we expect that?

[The information follows:]

We will revise our budget estimate for fiscal year 1995 after the recovery group has completed its efforts at the end of May.

AAS—COST FOR IBM STAFF

Mr. CARR. At the end of fiscal year 1993, IBM had a work force of about 1,900 on the AAS program. The average (fully loaded) cost of that work force was \$120,000 per staff year. Is this a fair and reasonable cost?

[The information follows:]

The Recovery Team effort to review the en route, terminal, and tower programs is also considering, as part of its analysis, the IBM costing. This review will be completed by the end of May 1994.

AAS—SUBMISSION OF COST/PRICING DATA

Mr. CARR. In a recent report, the Inspector General found significant weaknesses in IBM's cost estimating system. For example, IBM did not submit current, accurate, or complete cost or pricing data when they submitted proposals to the FAA. Apparently, the Defense Contract Audit Agency had been telling the FAA this since at least 1991. Why hasn't the FAA acted previously to address this problem, and what has been done now?

[The information follows:]

As noted when the FAA participated in the Joint Estimating System Review with DCAA in 1991, there were estimating system deficiencies in IBM's pricing system. Many of these deficiencies were called to DCAA's attention by FAA. The FAA, in conjunction with IBM, aggressively pursued correcting these deficiencies and had succeeded in correcting most deficiencies. But some of the deficiencies reappeared. IBM was formally put on notice in a letter from the AAS Contracting Officer to IBM/Federal Systems Company dated March 11, 1994, to take immediate action to "undertake an immediate internal management review and to furnish this office a formal response of the results and a detailed plan of action to close all open deficiencies. . . no later than April 7, 1994." This plan (containing actions and their schedule for completion) was received and IBM intends to take corrective action on all open deficiencies by June 15, 1994. On-going meetings between the FAA and IBM have been held to insure these deficiencies are corrected.

AAS—DISCUSSIONS WITH DCAA AUDITORS

Mr. CARR. According to this report, some FAA officials refused to talk to DCAA auditors looking into IBM's cost and pricing data. Why would the FAA take such action, when DCAA's job is to protect the government from paying contractors excessive or unsupported costs?

[The information follows:]

FAA officials have never refused to talk to the DCAA auditors. Coordination between the technical staff and DCAA is arranged by the contracting officer and direct communication is encouraged when necessary.

DCAA is not a single organization but rather a number of different offices auditing different contractors' facilities. On AAS, DCAA offices conduct audits at IBM (Rockville), IBM (Manassas), Raytheon Corporation, Computer Sciences Corporation, Formation Corporation, etc. On proposal evaluations, the FAA contracting officer coordinates the technical evaluators' activities with the various audit organizations to achieve timely negotiation positions leading to closure of procurement activities with the least cost in terms of dollars and schedule to the government.

DECISION FOR LIMITED CONSOLIDATION

Mr. CARR. Let's talk for a few moments about the FAA's facility consolidation plans. The FAA decided last year that it would pursue a "limited" consolidation strategy for its air traffic control facilities, in effect abandoning plans under way since 1983 for a significant consolidation.

As most of the people in this room know, I am opposed to limited consolidation, and believe that, particularly with a declining budget, the FAA should pursue greater consolidation.

Was cost the primary factor behind the FAA's decision to pursue only limited consolidation?

[The information follows:]

Cost is not the primary factor in the decision to limit consolidation. The associated technical, transition, schedule risk, and work force issues were the primary factors. The decision also allows the FAA to make consolidation decisions in response to specific operational needs which are economically based. It moves us away from a system architecture which commits the FAA to some number of "end-state" facilities irrespective of operational needs and economic priorities, and allows financial investments in facilities to be targeted to individual areas over the next 10 years.

LIMITED CONSOLIDATION AND NEW TRACON SYSTEM

Mr. CARR. To what extent was the potential to develop a very inexpensive system for stand-alone TRACONs (now called the New TRACON System) important for the limited consolidation decision?

[The information follows:]

Operational acceptability was a major reason for the limited consolidated decision as was the attractive economics of a new TRACON system (several of which are in operation or production for use overseas and at the High Desert TRACON and the Navy's China Lake facility). The potential to install a very compact stand-alone TRACON automation system without major facility enlargement was also a consideration, as well as having the ability to be flexible with the funding requirements in a constrained budget environment.

FACILITY CONSOLIDATION—ESTABLISHMENT CRITERIA

Mr. CARR. Last year, the FAA announced it had developed "establishment criteria" for new metroplex control facilities (MCFs), which would allow FAA regions to propose consolidation of TRACONs where it made economic sense. This sounds good on paper. However, FAA headquarters has already decided that MCFs will cost more to operate and maintain than the individual TRACONs they would replace. Headquarters has also set the estimated price of a new MCF (over \$130 million each). Therefore, for a region to even propose consolidation, it must show that the MCF would pay for itself through air traffic benefits.

By setting arbitrary limits on what can be counted as a benefit of consolidation, and by handing down a rigid and high cost to build and equip the facility, isn't it highly unlikely that any region would make such a proposal, and if so, doesn't it question your motives for issuing the "establishment criteria" in the first place?

[The information follows:]

The estimated price of an MCF includes equipment requirements for accomplishing the demanding mission of an MCF. Small systems would not provide us with the requisite functionality for an MCF. Estimated costs are based on the cost configuration which would satisfy MCF requirements and are not intended to be an exclusionary policy. They reflect the FAA position to use TAAS and VSCS to fulfill the requirement of our largest facilities. Other equipment will be analyzed.

The benefits which can be counted as benefits accruing uniquely to an MCF were calculated only after a rigorous review of MCF operational benefits conducted in association with MCF Criteria development. If additional benefits, not identified in the criteria accrue to an MCF, we are not aware of them. However, a region can use them to support an MCF requirement if they can show their existence.

Given a reasonable estimate of costs based on the required operational capability for an MCF, and a careful assessment of the benefits to be derived from the consolidation of some number of associated TRACONS,

- the cost of establishing, operating, and maintaining a new MCF must be less than the cost of upgrading, operating and maintaining the old unconsolidated TRACONS over the twenty year planning horizon, i.e., cost savings to the Government, or,
- any user benefits which accrue to the MCF through improved airspace management and efficiencies must offset the increase in cost.

The rule is:	F&E + O&M COST of a proposed MCF
Less	F&E + O&M COST of the Unconsolidated TRACONS
Must be less than the BENEFITS of an MCF.	

The life cycle cost of the MCF may be expected to be significantly higher than that of the currently unconsolidated Tracons because there is a lower initial F&E cost associated with the unconsolidated Tracons. In their case, the majority of the costs are sunk costs. The salary component of O&M cost will be the same, or probably higher, for the MCF because salary is based on a facilities traffic count which, for an MCF, will approach the sum of the traffic counts at all of the TRACONS to be consolidated into the MCF.

Given that the cost differential between the MCF and the currently unconsolidated TRACON is quite large, it is likely that regions will propose only a limited number of MCFs, but only because there is limited set of opportunities for MCFs to be cost beneficial, not because we were arbitrarily trying to deprive some area of an MCF.

SCHEDULE FOR NEW TRACON SYSTEM

Mr. CARR. A key behind the limited consolidation strategy is timely development and fielding of the New TRACON System. It was envisioned that this system would bring early benefits by being fielded in 1997. However, I understand that there is no funding in the fiscal year 1995 budget for this system. Therefore, the earliest you would have even the initial funds would be October 1995. Is it realistic to believe that this system can go through the contracting process, be developed (including 200,000 lines of new software code), tested, and put in place in only two years?

[The information follows:]

The FAA agrees that fielding the New TRACON System in 1997 is optimistic. However, several potential suppliers have developed systems that meet a significant amount of the New TRACON System requirements. The new code that needs to be added to meet the minimum functional and capacity requirements would however, have to be developed and the entire system thoroughly tested.

FACILITY CONSOLIDATION—LONG TERM COSTS

Mr. CARR. In comparing limited and moderate consolidation alternatives, the FAA has said that either could be accomplished from an operational perspective, but moderate consolidation resulted in greater work force disruption and cost more.

An internal FAA study dated September 1993 indicated that total life cycle costs of moderate and limited consolidation are identical when measured in constant dollars, and that O&M costs are actually less under moderate consolidation. It would appear that your limited consolidation strategy saves us F&E dollars in the near-term, but costs us more in O&M costs in the long run. Is this accurate?

[The information follows:]

LIFE CYCLE COST THROUGH 2024 (CONSTANT 1992 \$)				
Alternative Area	"Do Nothing"	Maximum Consolidation (Baseline 22 + 5)	Moderate Consolidation (53 Facilities)	Limited Consolidation
F & E	\$ 0.0 b	\$7.3 b	\$8.7 b	\$8.2 b
O & M	\$90.1 b	\$69.8 b	\$70.1 b	\$70.6 b
Total LCC	\$90.1 b	\$77.1 b	\$78.8 b	\$78.8 b
Present Value LCC	\$22.4 b	\$23.9 b	\$24.8 b	\$24.5 b

The above table was included in the September, 1993 Advanced Automation System (AAS) Issues Working Group (IWG) Final Report. The analysis supporting the above table was completed in December 1992.

Analysis of consolidation alternatives continued beyond December, 1992 and the results, including revised cost estimates were included in the September, 1993 Report to Congress, Plan for Limited Consolidation of the National Airspace System. The following table shows the updated estimates contained in that report:

LIFE CYCLE COST THROUGH 2024 (CONSTANT 1993 \$)			
Alternative Area	Maximum Consolidation (Baseline 22 + 5)	Moderate Consolidation (53 Facilities)	Limited Consolidation
F & E	\$5.9 b	\$7.3 b	\$6.1 b
O & M	\$71.6 b	\$71.5 b	\$71.7 b
Total LCC	\$77.5 b	\$78.8 b	\$77.8 b

Clearly, life-cycle costs for the three alternatives are similar; however, only moderate and limited consolidation are operationally acceptable. The Limited Consolidation option requires significantly less capital investment with only slightly higher O&M costs. We also believe that the new technology inherent in a new TRACON system may allow us to reduce maintenance staffing and O&M costs below those assumed in the analysis.

FACILITY CONSOLIDATION—COSTS ASSUMPTIONS

Mr. CARR. Some of the operating costs attributed to moderate consolidation relate to the FAA's decision to require backup voice, radar, and computer data to be sent from each of the consolidated facilities, in case of facility failure. However, I understand that you do not currently provide backup data from your MCFS. Is this a case of excessive costs being added to make moderate consolidation look bad?

[The information follows:]

The cost assumptions for the limited and moderate consolidation scenarios were derived from the previous assumptions used to develop the full consolidation costing, which was to backup all voice, radar, and computer data for consolidated facilities. A revised cost effective backup strategy is being developed for limited consolidation based on studies conducted at headquarters and site analysis of the proposed Northern California MCF. This strategy more evenly distributes the workload of a failed facility and does not require all voice, radar, and computer data to be dual routed.

FACILITY CONSOLIDATION—NEW TRACON SYSTEM COSTS

Mr. CARR. I believe the FAA currently estimates total costs to develop and field the New TRACON System at approximately \$460 million. What is assumed for this system in the total cost estimate for limited consolidation?

[The information follows:]

The New TRACON System is currently estimated at \$415.9 million and includes hardware for 9 large (greater than 80 common consoles) systems and 161 medium (less than 80 common consoles) systems. It was estimated that 1929 common consoles (includes spares and development) are required for the non-consolidated facilities. Of this amount, it was assumed that 1198 common consoles would be funded out of the AAS budget line item in the outyears, and would be available from the AAS contract. Costs were estimated for the remaining 731 consoles and included as part of the New TRACON System estimate. "Repackaging" costs for all 1929 were included to make the displays equivalent to the DOD low-boy. In addition, FAATC support and test system costs, training, and software development were included in the estimate.

DIFFERENCES BETWEEN MCF'S AND TRACONS

Mr. CARR. According to a fact paper given to subcommittee staff, the much more expensive AAS system was assumed to be procured for consolidated TRACON facilities, whereas the cheaper New TRACON System would be put in TRACONs which were not consolidated. (Of course, this drove up the cost of moderate consolidation.) This paper says "AAS equipment is believed necessary to provide the robustness needed, meet reliability requirements, the large capacity, and requirements such as numerous sensor and communications inputs." Are you saying that the New TRACON System will be inferior to AAS in all of these respects, including reliability?

[The information follows:]

One should not infer from the information in the fact paper that the New TRACON System would be inferior. Since the larger MCF TRACON facilities consolidate several existing TRACONs, they have significantly larger workload requirements. Some examples are: many more radar sensors, many more controlled aircraft, more satellite towers to support, and more communications connections. A smaller, stand-alone TRACON automation system that is not required to perform as much flight data and radar processing can be expected to provide a reliable capability at a lower cost. Indeed, as technology continues to improve, so does the ability of the types of systems being considered in the context of the New TRACON System to handle larger numbers of sensor inputs, controller displays, target tracks and expanded data blocks.

FACILITY CONSOLIDATION—TRACON REPLACEMENT

Mr. CARR. Your limited consolidation cost estimate assumed the replacement of only 17 (10 percent) of your TRACON buildings. However, I understand this was only a "guesstimate," and that a recent survey of your regions indicates a need to replace as many as 45 TRACONs. Is this correct, and if so, wouldn't that raise the cost of your current strategy?

[The information follows:]

The 10 percent estimate for TRACON replacements in the limited consolidation proposal was based on a top level survey of facilities. The FAA anticipates that new facilities can be reduced through collocation. The FAA has conducted a survey of field facilities and the regions have indicated they would like to have as many as 40 to 45 TRACON's replaced. Our experience is that a quality refurbishment may satisfy a number of the proposed replacements. The survey results submitted by the regions will be evaluated in terms of the recently established TRACON investment criteria to ensure that proposed actions are cost effective.

SATELLITE NAVIGATION PROGRAM

Mr. CARR. Can you update us today on progress made in the satellite navigation program and describe planned activities over the next year?

[The information follows:]

The following represents the progress made in various aspects of the satellite navigation program and the future planned activities:

Wide Area Augmentation System (WAAS)

The FAA has validated the concept of the Wide Area Augmentation System (WAAS) by a cross-country flight demonstration in December 1993. This was an aviation first to demonstrate the use of a network of eight ground stations strategically planned across the contiguous United States. As an initial demonstration, this test showed that coverage can be provided through the use of ground monitors and geostationary satellites.

The FAA and DOT are currently developing plans to accelerate the implementation of GPS for enroute through precision approach using the WAAS.

Local Area Differential GPS (LADGPS)

LADGPS was demonstrated at the Asia-Pacific Directors General Conference in Los Angeles, California in November 1993. In this demonstration, the LADGPS ground reference station and antenna were temporarily placed in an abandoned tower at the Ontario International Airport, located approximately 25 miles east of Los Angeles. Signals from the GPS satellites and the ground-based differential system were used by the aircraft's GPS receiver and flight management system to fly precision approaches. The Special Category I (SCAT-I) Minimum Aviation System Performance Standards (MASPS) were published by RTCA in August 1993, providing the performance parameters for SCAT-I operations.

In FY 1994, the FAA plans to release Order 8400.GNSS which will allow for the implementation of the SCAT-I MASPS.

Category II/III

The FAA has an aggressive program to investigate the feasibility of using GPS for Category IIIB approaches and landings by mid-1995. For this study, industry-designed demonstration systems will be tested for Category III accuracy and integrity. Feasibility testing will begin in late FY 1994.

Operational

The successful completion of the non-precision approach overlay program obviated the need to construct any new approach procedures before realizing the operational benefits of GPS. The FAA approved the use of GPS equipment for oceanic, domestic enroute, and terminal IFR operations on June 9, 1993.

GPS DECISIONS ON CATEGORY II/III LANDINGS

Mr. CARR. Are you still planning to make a definitive decision on whether GPS will meet the requirement for Category II and III instrument landings in 1995, or has that date slipped?

[The information follows:]

The FAA has an aggressive program to investigate the feasibility of using GPS for Category IIIB approaches and landings by mid-1995. For this study, industry-designed demonstration systems will be tested for Category III accuracy and integrity. If feasibility is determined (i.e., accuracy and integrity can be satisfied), the FAA will request approval to proceed to the next phase of the acquisition process, Demonstration and Validation. This request for approval to proceed, pending a satisfactory feasibility determination, is projected, for FY 1996.

MLS—FUNDING FOR PRODUCTION

Mr. CARR. Is it still the FAA's position that no production funds should be approved for microwave landing systems until that decision point is reached?

[The information follows:]

Yes. Production funds will not be approved for MLS until and unless a definitive decision is reached that GPS will *not* meet the requirements for Category II and III instrument landings and that MLS is needed to satisfy those requirements. In any case, a decision to produce MLS equipment for Category II/III installations cannot be made before September 1996 when we plan to complete the operational test and evaluation of our developmental systems.

GPS—REMAINING TECHNICAL CHALLENGES

Mr. CARR. What are the biggest technical challenges remaining in the development and approval of GPS technology for precision landings?

[The information follows:]

The FAA has demonstrated and validated the concept of both a local area and Wide Area Augmentation System (WAAS) for satisfying Category I precision approach requirements. The FAA has an aggressive program to investigate the feasibility of using GPS for Category IIIB approaches and landings by mid-1995. For this study, industry-designed demonstration systems will be tested for Category III accuracy and integrity. If feasibility is determined (i.e., accuracy and integrity can be satisfied), the FAA will request approval to proceed to the next phase of the acquisition process, Demonstration and Validation. To date, Category III accuracies have been demonstrated, although repeatable performance must still be guaranteed. A demonstration of integrity of the Local Area Differential GPS signal for Category II purposes has yet to be demonstrated and is the principal focus of the FAA program.

GPS—INTERNATIONAL ACCEPTANCE

Mr. CARR. There are consistent signals that the international community will not accept GPS, a satellite developed by, and under the operational control of, the U.S. Department of Defense. What would be the impact on our efforts to develop GPS for precision landings if the Europeans and other countries decide to develop and field MLS instead?

[The information follows:]

Our efforts to develop GPS for precision landings will not be significantly affected should the Europeans and other countries decide to develop and field MLS instead of a satellite-based technology. Based on positive results, the FAA Capital Investment Plan has already been revised to use augmented GPS instead of MLS to satisfy Category I precision approach requirements. An aggressive feasibility study is now underway to determine if a GPS-based system could support Category II and Category III precision approach and landing operations. The results of this study,

which will be completed in 1995, will help determine whether MLS will still be needed for Category II/III operations in the U.S. If MLS is fielded by other nations but not by the U.S., then it will be a business decision whether international air carrier equip with avionics compatible with the landing systems in all the areas they serve. The United Kingdom is advancing the idea of a "multi-mode" receiver capable of operating with all landing system technologies: ILS, MLS and GPS.

The "signals from the international community" are becoming progressively less consistent against GPS and more consistent in support of GPS. As we work with the various regional groups of the International Civil Aviation Organization (ICAO), we have found that GPS is fast becoming accepted, with little reservation, in the Asia-Pacific community and in a number of South American countries, as a valuable resource for air traffic management. While the most strenuous resistance has come from Europe (the United Kingdom in particular), even there we see a trend toward embracing the concept of a satellite-based air traffic management architecture. FAA representatives just recently conducted a successful series of meetings with officials from the European Union of air traffic control authorities. All present agreed with the objective of establishing, as soon as possible, a seamless global satellite navigation capability usable by a single avionics receiver, supporting en route navigation through precision approach operations.

MLS—REASON TO CONTINUE DEVELOPMENT

Mr. CARR. Last July, Acting Administrator Del Balzo was quoted as saying that supporters of MLS must "feel a little like those last, lonely fans of evening newspapers, long-playing records, and the Mets." Now in fairness I should note that the Mets are off to a good start this spring. But such a comment does make me wonder why we should continue developing MLS. Would you comment?

[The information follows:]

We are continuing the development of Category II/III MLS at a minimal level until we are certain that GPS can meet all precision approach requirements. Research and testing now being conducted indicate that the addition of ground-based differential systems could provide the accuracy needed to support GPS-based precision approaches in Category I weather conditions. We are also evaluating potential augmentations to the GPS constellation to provide the integrity, continuity, and availability required for precision approach guidance signals. In addition, an aggressive feasibility study is now underway to determine if a GPS-based system could support Category II and Category III precision approach and landing operations. The results of this study, which will be completed in 1995, will help determine whether MLS will still be needed for Category II/III operations.

The operational data produced by these units would serve as an essential baseline for future investment decisions, not only for MLS, but also for any precision landing system. Termination would deny the benefits of this valuable information.

Reductions to the MLS program would force the termination of the prototype development contracts prior to completion. This would result in contract termination costs for the two prime MLS contractors, which is estimated at \$15–\$20 million each. This includes payment to sub-contractors, inventory purchased for future use, personnel disruptions, and settlement charges. So, even if FAA had to terminate the contracts, the \$15 million additional in FY 1995 would still be required. In other words, the government has two choices on how to spend the \$15 million: (a) we can terminate the contracts and inherit truckloads of useless components; or (b) deploy 4 test articles for data validation.

OPERATING EXPENSES

Mr. CARR. Please provide a final quarterly financial plan for fiscal year 1993 and compare that to the appropriated levels, similar in format to the data found on page 575 of last year's hearing record.

[The information follows:]

DISTRIBUTION OF POSITIONS—BY OFFICE

Mr. CARR. Please update the table showing number of positions assigned to each of your offices and regions similar in format to that shown on pages 582–583 of last year's hearing record.

[The information follows:]

FAA DISTRIBUTION OF FULL TIME PERMANENT POSITIONS
OPERATIONS APPROPRIATION (DIRECT)

OFFICE	FY 1993 ACTUAL	FY 1994 EST.	FY 1995 EST.
ADMINISTRATOR (INCLUDES DEPUTY ADMIN. & COMM. CTR)	54	51	48
Chief Counsel	164	164	146
Assistant Administrator for Civil Rights	16	15	14
Assistant Administrator for Government & Industry Affairs	14	13	12
Assistant Administrator for Information Technology	110	107	101
Assistant Administrator for Public Affairs	37	35	33
Assistant Administrator for Budget & Accounting	7	7	7
Office of Accounting	75	72	68
Office of Budget	61	58	55
Assistant Administrator for Airports	18	16	16
Office of Airport Planning and Programming	40	40	40
Office of Airport Safety and Standards	42	36	36
Assistant Administrator for Civil Aviation Security	66	106	77
Office of Civil Aviation Security Intelligence	37	31	31
Office of Civil Aviation Security Operations	66	64	64
Office of Civil Aviation Security Policy & Planning	36	35	35
Office of Civil Aviation Security Program Management	28	16	16
Assistant Administrator for Human Resource Management	87	87	82
Office of Human Resource Development	46	44	41
Office of Labor and Employee Relations	22	22	21
Office of Personnel	55	57	54
Office of Training and Higher Education	40	36	20
Center for Management Development	8	7	7
Assistant Administrator for Policy, Planning, and International Aviation	20	19	18
Office of Aviation Policy, Plans & Management Analysis	73	71	69
Office of Environment and Energy	38	36	34
Office of International Aviation	29	27	26
Europe, Africa, and Middle East Office	61	72	70
Executive Director for System Operations	9	8	8
Associate Administrator for Air Traffic	7	8	8
Air Traffic Plans and Requirements Service	93	94	94
Office of Air Traffic Program Management	70	74	74
Air Traffic Rules and Procedures Service	82	93	93
Office of Air Traffic System Effectiveness	47	60	60
Office of Air Traffic System Management	200	218	218
Associate Administrator for Aviation Standards	48	46	44
Office of Accident Investigation	20	24	24
Office of Aviation Medicine	387	366	351
Office of Aviation System Standards	959	905	865
Associate Administrator for Airway Facilities	101	49	46
NAS Transition and Implementation Service	66	35	34
Operational Support Service	19	23	22
Resource Management Service	0	89	86
NAS Operations Service	0	62	60
Spectrum Policy and Management Service	0	23	22
Requirements and Life-Cycle Management Service	0	103	100
Systems Maintenance Service	144	0	0
Associate Administrator for Regulation and Certification	16	15	14
Aircraft Certification Service 1/	156	149	147
Flight Standards Service 1/	444	440	433
Office of Rulemaking	30	30	29
Office of System Capacity and Requirements	16	16	16
REGIONAL OFFICES:			
New England	2164	2070	2025
Eastern	5648	5493	5380
Southern	8748	8406	8340
Southwest	5842	5643	5526
Great Lakes	7076	6844	6701
Central	2875	2816	2754
Northwest Mountain	4586	4493	4373
Western-Pacific	6283	5975	5773

FAA DISTRIBUTION OF FULL TIME PERMANENT POSITIONS
OPERATIONS APPROPRIATION (DIRECT)

Alaskan	1642	1563	1524
Mike Monroney Aeronautical Center	2054	2017	1893
Executive Director for System Development	15	14	13
Associate Administrator for NAS Development	24	24	23
Program Manager for Advanced Automation	7	7	7
Program Director for Automation	56	56	55
Program Director for Communications	26	29	28
Program Director for Navigation and Landing	33	33	32
Program Director for Surveillance	40	40	39
Program Director for Weather and Flight Service Systems	22	22	22
Associate Administrator for System Engineering and Development	15	17	16
Facility System Engineering Service	5	6	6
NAS Program Management Service	9	9	9
NAS System Engineering Service	8	9	9
Operations Research Service	4	4	4
Research and Development Service	7	4	4
Associate Administrator for Contracting & Quality Assurance	113	163	145
FAA Technical Center	626	676	650
Executive Director for Acquisition and Safety Oversight	14	13	12
Associate Administrator for Aviation Safety	15	15	14
Office of Integrated Safety Analysis	41	41	39
Office of Safety Information and Promotion	15	15	15
Office of Acquisition Policy and Oversight	14	13	12
Office of Independent Operational Test and Evaluation Oversight	10	9	9
TOTAL	52,251	50,813	49,541

1/Includes positions previously reported under Office of Aviation System Standards.

DISTRIBUTION OPERATIONS POSITIONS BY ACTIVITY

Mr. CARR. Please update the table showing position levels by operations budget activity, shown on page 584 of last year's hearing record, by providing data for fiscal years 1993 through 1995.

[The information follows:]

FULL-TIME PERMANENT POSITIONS - OPERATIONS APPROPRIATION

Activity	Fiscal year 1994--Congressional			Fiscal Year	Fiscal Year
				1994 Col. of	1995 Col. of
	1994			Fiscal Year	Fiscal Year
	FY 1993	FY 1994	Approved	1995	1995
	Approved	Request	by Congress	Congressional	Congressional
Air Traffic	27,386	26,756	26,756	26,756	26,343
NAS Logistics	1,389	1,323	1,323	1,370	1,285
Systems Maintenance	10,991	10,579	10,579	10,454	10,104
Aviation Regulation & Certification	5,420	5,348	5,348	5,350	5,264
Aviation Standards	1,414	1,346	1,346	1,341	1,284
Civil Aviation Security	1,031	997	997	997	971
NAS Design & Management	529	529	529	588	557
Airports	550	522	522	522	522
Direction, Staff & Support	1,434	1,434	1,434	1,444	1,361
Human Resource Management	1,533	1,457	1,457	1,445	1,331
Headquarters Administration	574	574	522	546	519
Total	52,251	50,865	50,813	50,813	49,541

POSITIONS AND EMPLOYMENT SUMMARY

Mr. CARR. Please update the table on positions and employment shown on pages 584-585 of last year's hearing record.
[The information follows:]

APPROPRIATION	ACTUAL EMPLOYMENT		FISCAL YEAR 1994 ESTIMATE*			FISCAL YEAR 1995 ESTIMATE**		
	SEPT. 30,	MARCH 31,	PERMANENT	END OF YEAR	EMPLOYMENT	FULL-TIME	PERMANENT	END OF YEAR
	1993	1994						
OPERATIONS:								
Air Traffic	26,233	25,948	26,756	25,701	26,343	26,343	25,311	25,311
NAS Logistics	1,299	1,328	1,370	1,267	1,285	1,285	1,221	1,221
Systems Maintenance	10,031	9,918	10,454	9,529	10,104	10,104	9,274	9,274
Aviation Regulation & Certification:								
Flight Standards	3,381	3,337	4,299	3,303	4,232	4,232	3,534	3,534
Aircraft Certification	845	826	1,007	826	990	990	900	900
Planning, Direction & Evaluation	40	41	44	39	42	42	38	38
Aviation Standards:								
Flight Program & Mgmt. of Aircraft	722	707	735	687	703	703	671	671
Airmen and Aircraft Registry	142	140	192	135	184	184	132	132
Aviation Medicine	317	316	366	302	354	354	295	295
Planning, Direction & Evaluation	43	46	48	41	43	43	40	40
Civil Aviation Security	831	815	997	812	971	971	812	812
NAS Design & Management	556	558	588	535	557	557	524	524
Airports	506	499	522	496	522	522	496	496
Direction, Staff and Support	1,361	1,338	1,444	1,283	1,361	1,361	1,243	1,243
Human Resource Management	1,429	1,382	1,445	1,339	1,331	1,331	1,291	1,291
Headquarters Administration	529	528	546	503	519	519	493	493
SUBTOTAL, OPERATIONS	48,265	47,727	50,813	46,798	49,541	49,541	46,275	46,275
FACILITIES & EQUIPMENT:	2,270	2,219	2,504	2,450	2,504	2,504	2,450	2,450
RESEARCH, ENGR. & DEVELOPMENT:	639	634	645	636	645	645	636	636
AVIATION INSURANCE:	3	2	2	2	2	2	2	2
Total, Direct	51,177	50,582	53,964	49,886	52,692	52,692	49,563	49,563
Total, Reimbursable	462	424	451	451	451	451	414	414
TOTAL, FAA	51,639	51,006	54,415	50,337	53,143	53,143	49,777	49,777

* Data reflects the FY 1994 column of the FY 1995 Congressional submission.

** Data reflects the FY 1995 column of the FY 1995 Congressional submission.

EMPLOYEES BY GS GRADE LEVEL

Mr. CARR. Please update the table, similar in format to that found on page 585 of last year's hearing record, which shows the number of employees at each GS grade level for fiscal years 1993 through 1995.

[The information follows:]

OPERATIONS APPROPRIATION

<u>Grade</u>	Fiscal year--		
	1993 Actual	1994 Estimate	1995 Estimate
GS/GM-15	3,441	3,370	3,299
GS/GM-14	12,813	12,548	11,978
GS/GM-13	8,337	8,164	7,992
GS-12	10,455	10,238	10,327
GS-11	4,833	4,733	4,633
GS-10	1,320	1,293	1,266
GS-9	2,060	2,017	1,974
GS-8	175	171	167
GS-7	2,036	1,994	1,952
GS-6	1,199	1,174	1,149
GS-5	1,107	1,084	1,061
GS-4	272	266	260
GS-3	33	32	31
GS-2	12	12	12
Total	48,093	47,096	46,101

WORKLOAD INDICATORS AND INDUSTRY TRENDS

Mr. CARR. Please update the table on workload indicators shown on page 586 of last year's hearing record.
[The information follows:]

WORKLOAD INDICATORS AND INDUSTRY TRENDS

Fiscal Year	1992	1993	1994	1995
Forecast Made In March 1990:				
Domestic Aviation Fuel Consumption (Billions of Gallons)	14.6	15.0	15.4	15.7
Revenue Passenger-Miles (Billions) 1	509.5	532.7	561.3	590.2
General Aviation Hours Flown (Millions)	35.2	35.5	36.2	37.0
IFR Aircraft Handled (Millions)	40.1	41.0	41.9	42.8
Total Operations at Airports with FAA Towers (Millions)	66.5	67.7	69.4	70.9
Instrument Operations Handled by FAA Towers (Millions)	49.6	50.8	52.2	53.4
Forecast Made In February 1991:				
Domestic Aviation Fuel Consumption (Billions of Gallons)	14.3	14.8	15.2	15.4
Revenue Passenger-Miles (Billions) 1	488.3	515.5	542.8	576.1
General Aviation Hours Flown (Millions)	36.3	36.9	37.2	37.9
IFR Aircraft Handled (Millions)	39.6	40.6	41.5	42.7
Total Operations at Airports with FAA Towers (Millions)	65.9	67.3	68.9	70.7
Instrument Operations Handled by FAA Towers (Millions)	48.9	50.1	51.4	52.9
Forecast Made In February 1992:				
Domestic Aviation Fuel Consumption (Billions of Gallons)	12.9	13.4	13.8	14.3
Revenue Passenger-Miles (Billions) 1	479.2	506.8	534.4	561.5
General Aviation Hours Flown (Millions)	35.6	36.2	36.7	37.0
IFR Aircraft Handled (Millions)	37.3	38.3	39.4	40.3
Total Operations at Airports with FAA Towers (Millions)	62.4	64.0	65.8	67.3
Instrument Operations Handled by FAA Towers (Millions)	46.1	47.4	48.8	50.1
Forecast Made In February 1993:				
	Actual 2			
Domestic Aviation Fuel Consumption (Billions of Gallons)	12.5	12.7	13.2	13.7
Revenue Passenger-Miles (Billions) 1	480.8	501.7	533.1	563.8
General Aviation Hours Flown (Millions) r	29.9	30.1	30.6	31.3
IFR Aircraft Handled (Millions)	36.7	37.5	38.4	39.3
Total Operations at Airports with FAA Towers (Millions)	61.5	62.5	64.1	65.6
Instrument Operations Handled by FAA Towers (Millions)	45.6	46.4	47.6	48.9
Forecast Made In March 1994:				
	Actual	Actual 2		
Domestic Aviation Fuel Consumption (Billions of Gallons)	12.5	12.7	12.8	13.2
Revenue Passenger-Miles (Billions) 1	481.1	488.2	507.6	534.1
General Aviation Hours Flown (Millions) r	27.4	25.8	26.1	26.3
IFR Aircraft Handled (Millions)	36.7	37.5	37.9	38.6
Total Operations at Airports with FAA Towers (Millions)	61.5	60.1	60.9	61.8
Instrument Operations Handled by FAA Towers (Millions)	45.6	45.7	46.2	47.0

1 Total System, Domestic Plus International Scheduled Revenue Passenger-Miles

2 Preliminary

r Revised

ADVISORY COMMITTEES

Mr. CARR. Please update the information on FAA's advisory committees shown on pages 586-587 of last year's hearing record, and indicate any which were deleted in fiscal year 1994 pursuant to Executive Order.

[The information follows:]

ADVISORY COMMITTEES

Name	Purpose	Subject to Ceiling	FY 1995 Estimate
Air Traffic Procedures Advisory Committee	Reviews air traffic control procedures and practices.	800	49,500
RTCA, Inc., (Utilized as an Advisory Committee)	Advances the art and science of aeronautics through the investigation of all available or potential applications of the telecommunication art, their coordination with allied arts, and the adoption thereof to recognized operational requirements.	225,000	300,000
Aviation Security Advisory Committee	Examines all areas of civil aviation security with the aim of providing recommendations for the improvement of methods, equipment, and procedures which will ensure a higher degree of safety for the traveling public.	4,000	33,000
Aviation Rulemaking Advisory Committee	Provides advice and recommendations concerning the full-range of FAA's rulemaking activity with respect to safety-related issues, such as air carrier operations, aircraft certification, airports, and noise.	50,000	132,000
Research, Engineering and Development Advisory Committee	Provides advice on the needs, objectives, plans, and accomplishments concerning aviation research needs in the area of airport capacity, system safety, aircraft safety, aeronautical research, aviation security, future technology, and the National Airspace System.	0	250,000
Civil Tiltrotor Development Advisory Committee	Evaluates the technical feasibility and economic vitality of developing civil tiltrotor aircraft and a national system of infrastructure to support the incorporation of tiltrotor aircraft technology into the national transportation system.	25,000	25,000
TOTAL		304,800	789,500

AVIATION ACCIDENT AND FATALITY RATES

Mr. CARR. Please update the tables contained on pages 588-595 of last year's hearing record showing a chronological history of aviation accident and fatality rates.

[The information follows:]

TABLE 1
ACCIDENTS, FATALITIES, AND RATES
AIR CARRIERS AND GENERAL AVIATION
1993 (PRELIMINARY DATA)

	Accidents		Fatalities		Aircraft Hours Flown	Departures	Accident Rates			
							Per 100,000 Aircraft Hours		Per 100,000 Departures	
	Total	Fatal	Total	Aboard			Total	Fatal	Total	Fatal
Air Carriers Operating Under 14 CFR 121										
Scheduled	23	1	1	0	11,900,000	7,732,000	0.193	0.008	0.297	0.013
Nonscheduled	0	0	0	0	624,000	312,000	0	0	0	0
Air Carriers Operating Under 14 CFR 135										
Scheduled	16	4	24	23	2,369,000	3,144,000	0.675	0.169	0.509	0.127
Nonscheduled	71	19	42	42	2,100,000	n/a	3.38	0.90	n/a	n/a
General Aviation -	2022	385	715	712	23,000,000	n/a	8.79	1.67	n/a	n/a
-----	----	----	----	----						
U.S. Civil Aviation *	2131	409	782	777						
Foreign Registered Aircraft Accidents in the U.S.	14	5	9	9						
Unregistered Aircraft Accidents in the U.S.	13	8	9	9						

Exposure data estimate source: Federal Aviation Administration (FAA).

* Accidents involving U.S. registered civil aircraft not operated under 14 CFR 121 or 14 CFR 135.

* Accidents and fatalities in the categories do not necessarily sum to the figures in U.S. Civil Aviation. Differences are due to collisions involving aircraft in different categories.

n/a Data not available.

TABLE 2
ACCIDENTS, FATALITIES, AND RATES
U.S. AIR CARRIERS OPERATING UNDER 14 CFR 121
ALL SCHEDULED AND NONSCHEDULED SERVICE
(AIRLINES *)
1962 - 1993

Year	Accidents		Fatalities		Aircraft Miles Flown	Aircraft Hours Flown	Departures	Accident Rates ^b					
								Per Million Aircraft Miles		Per 100,000 Aircraft Hours		Per 100,000 Departures	
	Total	Fatal	Total	Aboard				Total	Fatal	Total	Fatal	Total	Fatal
1962	20	5	235	223	2,938,513,000	7,040,325	5,351,133	0.0085	0.0014	0.270	0.057	0.355	0.075
1963	24	4	15	14	3,069,318,000	7,298,799	5,444,374	0.0078	0.0013	0.329	0.055	0.441	0.073
1964	17	1	4	4	3,428,063,000	8,165,124	5,898,852	0.0050	0.0003	0.208	0.012	0.288	0.017
1965	22	7	526	525	3,631,017,000	8,709,894	6,306,759	0.0061	0.0019	0.253	0.080	0.349	0.111
1966	24	3	8	7	4,017,626,000	9,976,104	7,202,027	0.0057	0.0005	0.231	0.020	0.319	0.028
1967	36	5	232	229	4,360,521,000	10,645,192	7,601,373	0.0080	0.0009	0.329	0.038	0.460	0.053
1968	29	3	285	274	4,503,426,000	11,140,548	7,716,061	0.0062	0.0004	0.251	0.018	0.363	0.026
1969	28	11	278	276	4,605,083,000	11,274,543	7,645,494	0.0061	0.0024	0.248	0.098	0.366	0.144
1990	24	6	39	12	4,970,087,000	12,150,116	8,224,902	0.0048	0.0012	0.198	0.049	0.292	0.073
1991	26	4	62	49	4,850,850,000	11,900,023	7,985,630	0.0054	0.0008	0.218	0.034	0.326	0.050
1992	18	4	33	31	5,087,723,000	12,495,667	8,080,791	0.0035	0.0008	0.144	0.032	0.223	0.050
1993 ^c	22	1	1	0	5,147,000,000	12,524,000	8,044,300	0.0045	0.0002	0.184	0.008	0.296	0.012

^a Preliminary data.

^b Includes accidents involving deregulated all cargo air carriers and commercial operators of large aircraft when those accidents occurred during 14 CFR 121 operations.

^c Source of estimate: FAA.

^d The fatality total includes the 12 persons killed aboard a Skywest commuter aircraft and the 22 persons killed aboard the USAir airliner when the two aircraft collided.

^e The following suicide/sabotage cases are included in "Accidents" and "Fatalities" but not in "Accident Rates":

Date	Location	Operator	Fatalities	
			Total	Aboard
8/11/82	Honolulu, HI	Pan American	1	1
4/22/86	Near Athens, Greece	Trans World	4	4
12/07/87	San Luis Obispo, CA	Pacific Southwest	43	43
12/21/88	Lockerbie, Scotland	Pan American	270	259

TABLE 3
ACCIDENTS, FATALITIES, AND RATES
U.S. AIR CARRIERS OPERATING UNDER 14 CFR 121
ALL SCHEDULED SERVICE
(AIRLINES *)
1982 - 1993

								Accident Rates ⁴					
Year	Accidents		Fatalities		Aircraft Miles Flown ¹	Aircraft Hours Flown ²	Departures ³	Per Million Aircraft Miles		Per 100,000 Aircraft Hours		Per 100,000 Departures	
	Total	Fatal	Total	Aboard				Total	Fatal	Total	Fatal	Total	Fatal
1982	16	4	234	222	2,806,885,000	6,697,770	5,162,346	0.0053	0.0011	0.224	0.045	0.291	0.358
1983	22	4	15	14	2,920,909,000	6,914,969	5,235,262	0.0075	0.0014	0.318	0.058	0.420	0.376
1984	13	1	4	4	3,258,910,000	7,736,537	5,666,076	0.0040	0.0003	0.168	0.013	0.229	0.318
1985	17	4	197	196	3,452,753,000	8,265,332	6,068,893	0.0049	0.0012	0.206	0.048	0.260	0.366
1986	21	2	5	4	3,829,129,000	9,495,158	6,928,103	0.0052	0.0003	0.211	0.011	0.289	0.314
1987	32	4	231	229	4,125,874,000	10,115,407	7,293,025	0.0075	0.0007	0.306	0.030	0.423	0.341
1988	28	3	285	274	4,260,785,000	10,521,052	7,347,575	0.0063	0.0005	0.257	0.019	0.367	0.327
1989	24	8	131	120	4,339,331,000	10,197,922	7,269,094	0.0055	0.0018	0.226	0.075	0.300	0.310
1990	22	6	39	12	4,712,159,000	11,524,726	7,931,256	0.0047	0.0013	0.191	0.052	0.277	0.376
1991	25	4	62	49	4,583,718,000	11,253,868	7,675,489	0.0055	0.0009	0.222	0.036	0.326	0.352
1992	16	4	33	31	4,816,079,000	11,866,213	7,719,715	0.0033	0.0008	0.135	0.034	0.207	0.352
1993P	23	1	1	0	4,885,350,000	11,900,300	7,732,000	0.0047	0.0002	0.193	0.008	0.237	0.313

P Preliminary data.

* Includes accidents involving deregulated all cargo air carriers and commercial operators of large aircraft when those accidents occurred during 14 CFR 121 operations.

¹ Source of estimate: FAA.

² The fatality total includes the 12 persons killed aboard a Skywest commuter aircraft and the 22 persons killed aboard the USAir airliner when the two aircraft collided.

³ The following suicide/sabotage cases are included in "Accidents" and "Fatalities" but not in "Accident Rates":

Date	Location	Operator	Fatalities	
			Total	Aboard
8/11/82	Honolulu, HI	Pan American	1	1
4/02/86	Near Athens, Greece	Trans World	4	4
12/07/87	San Luis Obispo, CA	Pacific Southwest	43	43
12/21/88	Lockerbie, Scotland	Pan American	270	259

TABLE 4
ACCIDENTS, FATALITIES, AND RATES
U.S. AIR CARRIERS OPERATING UNDER 14 CFR 121
ALL NONSCHEDULED SERVICE
(AIRLINES *)
1982 - 1993

								Accident Rates					
Accidents		Fatalities						Per Million Aircraft Miles		Per 100,000 Aircraft Hours		Per 100,000 Departures	
Year	Total	Fatal	Total	Aboard	Aircraft Miles Flown	Aircraft Hours Flown	Departures	Total	Fatal	Total	Fatal	Total	Fatal
1982	4	1	1	1	131,628,300	342,555	188,787	0.0304	0.0076	1.168	0.192	2.119	0.530
1983	2	0	0	0	148,409,300	383,930	209,112	0.0135	0.0000	0.521	0.000	0.956	0.000
1984	4	2	0	0	169,153,300	429,387	232,776	0.0236	0.0000	0.932	0.300	1.718	0.300
1985	8	3	329	329	178,164,300	444,502	237,866	0.0260	0.0168	1.105	0.675	2.102	1.261
1986	3	1	1	1	186,497,300	480,346	273,924	0.0159	0.0053	0.624	0.208	1.095	0.365
1987	4	1	1	1	234,847,300	529,785	306,348	0.0170	0.0043	0.755	0.189	1.297	0.324
1988	1	0	0	0	242,841,300	619,496	368,486	0.0041	0.0000	0.161	0.000	0.271	0.000
1989	4	2	147	146	267,050,300	676,611	376,400	0.0150	0.0112	0.591	0.443	1.063	0.797
1990	2	0	0	0	257,928,300	625,390	293,646	0.0078	0.0000	0.320	0.000	0.681	0.000
1991	1	0	1	1	267,132,300	646,183	310,141	0.0037	0.0000	0.185	0.000	0.322	0.000
1992	2	1	1	1	271,648,300	629,484	361,376	0.0074	0.0000	0.318	0.000	0.534	0.000
1993	2	0	1	1	260,000,300	624,300	310,300	0.0000	0.0000	0.000	0.000	0.000	0.000

* For 1982-1993.

* Includes accidents involving scheduled and nonscheduled air carriers and commercial operators of large aircraft when those accidents occurred during 14 CFR 121 operations.

* Source of estimates: FAA.

TABLE 5
ACCIDENTS, FATALITIES, AND RATES
U.S. AIR CARRIERS OPERATING UNDER 14 CFR 135
ALL SCHEDULED SERVICE
(COMMUTER AIR CARRIERS *)
1982 - 1993

Year	Accidents		Fatalities		Aircraft Miles Flown#	Aircraft Hours Flown#	Departures#	Accident Rates#					
	Total	Fatal	Total	Aboard				Per Million Aircraft Miles		Per 100,000 Aircraft Hours		Per 100,000 Departures	
								Total	Fatal	Total	Fatal	Total	Fatal
1982	26	5	14	14	222,355,000	1,298,748	2,026,691	0.117	0.022	2.300	0.385	1.283	0.247
1983	17	2	11	10	253,572,000	1,510,908	2,328,430	0.067	0.008	1.125	0.132	0.730	0.386
1984	22	7	48	46	291,460,000	1,745,762	2,676,590	0.075	0.024	1.260	0.401	0.822	0.262
1985	21	7	17	16	300,817,000	1,737,106	2,361,463	0.070	0.023	1.209	0.403	0.820	0.273
1986	15	2	4	4	307,393,000	1,724,586	2,798,811	0.049	0.007	0.870	0.116	0.536	0.071
1987	12	10	19	17	351,879,000	1,946,349	2,809,919	0.091	0.028	1.644	0.314	1.139	0.356
1988	19	2	21	21	380,237,000	2,092,589	2,909,005	0.050	0.005	0.908	0.096	0.653	0.069
1989	18	5	11	11	393,619,000	2,240,555	2,818,520	0.046	0.013	0.803	0.223	0.639	0.177
1991	15	3	6	4	450,067,000	2,316,952	3,159,763	0.033	0.007	0.542	0.128	0.475	0.095
1991	22	8	39	37	381,464,000	2,171,067	2,647,876	0.058	0.021	1.013	0.368	0.831	0.302
1992	23	7	21	21	442,107,000	2,181,590	2,911,166	0.050	0.016	1.003	0.321	0.756	0.240
1993*	14	4	24	23	489,500,000	2,369,300	3,144,000	0.033	0.008	0.875	0.169	0.353	0.127

* Preliminary data.

4 Source of estimate: FAA.

- The fatality total includes the 11 persons killed aboard a Skywest commuter aircraft and the 22 persons killed aboard the USAir aircraft when the two aircraft collided.

1 Rates are based on all accidents including some involving operators not reporting traffic data to RSFA.

The following "attempted" suicide case is included in "Accidents" but not in "Accident Rates":

Date	Location	Operator	Fatalities	
			Total	Aboard
4/17/92	Lexington, KY	Mesa Air Lines	0	0

* Includes accidents involving aircraft and carriers when those accidents occurred during scheduled 14 CFR 135 operations. Aircrafts and carriers no longer meet the RSFA definition for "Commuters".

TABLE 6
ACCIDENTS, FATALITIES, AND RATES
U.S. AIR CARRIERS OPERATING UNDER 14 CFR 135
NONSCHEDULED OPERATIONS
(ON-DEMAND AIR TAXIS)
1982 - 1993

Year	Accidents		Fatalities		Aircraft Hours Flown*	Accident Rates Per 100,000 Aircraft Hours	
	Total	Fatal	Total	Aboard		Total	Fatal
1982	132	31	72	72	3,008,000	4.39	1.03
1983	141	27	62	57	2,378,000	5.93	1.14
1984	146	23	52	52	2,843,000	5.14	0.81
1985	154	35	76	75	2,570,000	5.99	1.36
1986	117	31	65	61	2,690,000	4.35	1.15
1987	97	30	65	63	2,657,000	3.65	1.13
1988	101	28	59	55	2,632,000	3.84	1.06
1989	111	25	83	81	3,020,000	3.68	0.83
1990	106	28	50	48	2,249,000	4.71	1.24
1991	87	27	70	66	2,241,000	3.88	1.20
1992	76	24	70	67	2,009,000	3.78	1.19
1993P	71	19	42	42	2,100,000	3.38	0.90

P Preliminary data.

* Source of estimate: FAA. Hours flown for the years 1982 through 1991 have been revised to reflect the results of FAA's General Aviation Activity and Avionics Non-respondent Survey.

TABLE 7
ACCIDENTS, FATALITIES, AND RATES
U.S. GENERAL AVIATION *
1982 - 1993

Year	Accidents		Fatalities		Aircraft Hours Flown [†]	Accident Rates [‡] Per 100,000 Aircraft Hours	
	Total	Fatal	Total	Aboard		Total	Fatal
1982	3233	591	1187	1170	29,640,000	10.90	1.99
1983	3077	556	1069	1062	28,673,000	10.73	1.94
1984	3016	545	1042	1021	29,099,000	10.35	1.87
1985	2738	498	955	944	28,322,000	9.66	1.75
1986	2582	474	967	878	27,073,000	9.54	1.75
1987	2494	447	838	823	26,972,000	9.24	1.65
1988	2386	460	800	792	27,446,000	8.69	1.68
1989	2230	431	768	765	27,920,000	7.97	1.53
1990	2214	442	766	761	28,510,000	7.76	1.55
1991	2170	431	781	767	27,226,000	7.96	1.58
1992	2074	447	862	860	23,792,000	8.71	1.87
1993	2022	385	715	712	23,000,000	8.79	1.67

‡ Preliminary data.

† Source of estimate: FAA. Hours flown for the years 1982 through 1991 have been revised to reflect the results of FAA's General Aviation Activity and Avionics Non-respondent Survey.

* U.S. registered civil aircraft not operated under 14 CFR 121 or 14 CFR 135.

‡ Suicide and sabotage accidents excluded from rates as follows:

Total - 1982 (3), 1983 (1), 1984 (3), 1985 (3), 1987 (1), 1988 (1), 1989 (5),
1990 (1), 1991 (3), 1992 (1)
Fatal - 1984 (2), 1985 (2), 1987 (1), 1989 (4),
1991 (2), 1992 (1)

TABLE 8
FATAL ACCIDENTS AND FATALITIES
U.S. AIR CARRIERS OPERATING UNDER 14 CFR 121
ALL SCHEDULED SERVICE
(AIRLINES)
1993 (PRELIMINARY DATA)

Date	Location	Operator	Service	Aircraft	Fatalities				Total Aboard	Reported Type of Accident
					Psgs	Crew	Other	Total		
4/4	Chicago, IL	Simmons Airlines, dba: American Eagle	Psgs	ATR 42-300	0	0	1	1	48	Ground crewmember struck by propeller

TABLE 9
FATAL ACCIDENTS AND FATALITIES
U.S. AIR CARRIERS OPERATING UNDER 14 CFR 135
ALL SCHEDULED SERVICE
(COMMUTER AIR CARRIERS)
1993 (PRELIMINARY DATA)

Date	Location	Operator	Service	Aircraft	Fatalities				Total Aboard	Reported Type of Accident
					Psgs	Crew	Other	Total		
4/2	Nome, AK	Ryan Air Service	Psgs	Cessna 207	1	1	0	2	2	Crashed into flat terrain shortly after takeoff
7/12	Las Vegas, NV	Alt Nevada Airlines	Psgs	Cessna 402-C	2	1	0	3	3	Lost control and crashed while returning to airport for a precautionary landing
11/1	Newark, NJ	Northeast Express Airlines, dba: Northwest Airlines	Psgs	Fairchild SA 227-AC	0	0	1	1	15	Ground crewmember struck by propeller
12/1	Hibbing, MI	Express Airlines II, dba: Northwest Airlines	Psgs	BAe 3101	16	2	0	18	18	Crashed 3 miles short of airport during approach

OPERATIONS TRAVEL COST DATA

Mr. CARR. Please update the travel cost data included on page 596 of last year's hearing record by providing data for fiscal years 1993 through 1995.

[The information follows:]

TRAVEL AND TRANSPORTATION OF THINGS—OPERATIONS APPROPRIATION

[In thousands of dollars]

	Fiscal year—		
	1993 actual	1994 estimate	1995 estimate
Training travel	32,085	36,390	32,770
Job performance travel	55,522	49,995	45,381
Other travel	15,562	7,203	4,544
Transportation of things	21,704	17,323	¹ 19,363
Total	124,873	110,911	102,058

¹ The increase in Transportation of things from FY 1994 to FY 1995 is due to increases for PCS moves and NAS support.

OPERATIONS—OTHER SERVICES

Mr. CARR. Please provide a breakdown of your fiscal year 1995 "other services" request, similar in format to that shown on pages 597–598 of last year's hearing record, including the comparable amounts for fiscal years 1993 and 1994.

[The information follows:]

OTHER SERVICES - OPERATIONS APPROPRIATION
(Amounts in Thousands)

	FY 1993 Actual	FY 1994 Estimate	FY 1995 Estimate
A-76 contractual services	838	754	732
AAC - engineering design and support			
Accident prevention program			
Aeronautical charting services	16,391	14,800	12,400
Aircraft airworthiness composite and major repairs	2,278	3,880	3,341
Aircraft rental	3,998	4,300	2,351
Audio visual services	407	364	354
Automated flight inspection system (AFIS)	2,200	60	59
Automation support contract	36,345	37,800	37,877
Aviation safety analysis system (ASAS)			
Center weather services - FAA/NOAA	11,262	8,142	8,150
Contract maintenance 1/	18,686	22,716	35,471
Contract physicians	568	450	400
Contractual data processing service	18,049	16,621	15,754
Contractual studies	1,670	895	775
Contractual time-sharing teleprocessing services	1,641	1,460	1,335
Contractual training services	51,390	40,440	32,177
Effective secretarial services (ESS)	622	379	380
Employee assistance program services	1,389	1,410	1,430
Employee involvement program services	3,144	3,145	2,945
Federal law enforcement training	20	20	18
Flight/nonflight training	5,867	4,746	3,736
Flight standards district office data entry support contract	30	0	50
Flight training	1,784	1,836	1,928
General working agreement at Transportation Systems Center	8,326	6,815	4,668
Janitorial and guard services	5,499	4,169	4,000
JDL contract for personal services for clerical functions	18,338	23,621	23,604
Leased telecommunications - Transportation Support Center	2,620	2,538	2,430
Maintenance of host computer	9,700	11,000	8,600
Maintenance of integrated communication switching system	3,747	3,747	3,747
Master labor contract Tokyo	16,300	14,900	14,900
Medical clinic service for ARTCC's	157	157	100
Medical examinations	40	40	40
Handbooks	9	15	15
NAS supply support	856	580	580
Not otherwise classified 2/	16,224	17,338	17,962
Office of automation technology & services (OATS)	87,684	81,690	79,171
On-the-job training for flight inspection and procedures	37	263	50
Operation of contract ATC towers			
Overhaul of aircraft engines	5,237	9,011	15,900
Physical examinations	2,894	2,350	2,660
Project SAFE - Technical training module development	1,926	1,724	1,725

Random drug testing	2,220	1,580	0
AVS-60 support (aircraft)			
Regional support (aircraft)			
Regulatory analysis	164	100	100
Repair and maintenance of ADP equipment	7,755	7,249	6,850
Repair/maintenance administrative, operating, working, and test equipment	2,394	1,608	1,524
Repair, maintenance and inspection of equipment and buildings	0	0	0
	11,579	11,286	11,294
Security investigations	747	510	515
Society of automotive engineers	42	79	82
Storage of household effects	1,500	748	2,144
Substance abuse program	1,245	102	105
Supervisory identification & development program services	744	113	102
Technical Center			
Sector operations support contract	2,574	2,537	2,537
Other engineering support	7,054	5,200	5,200
Traffic management system (CFCE)	1,209	1,900	1,900
USAF training of K-9 teams			
Weather observation services	15,018	12,477	12,468
Working capital fund	14,822	17,069	26,645
Total, Other Services	\$427,240	\$406,734	\$413,281

1/ Contract Maintenance as shown on the above table does not equate to contracts for maintenance of NAS systems and equipment. While the majority of the amounts shown above on the contract maintenance line are associated with maintenance of NAS systems and equipment, the amounts shown on the lines for "Maintenance of host computer" and "Maintenance of integrated communication switching system" are also part of maintenance of NAS systems and equipment.

2/ This line item includes miscellaneous items not identified by a descriptive object class code.

SOCIETY OF AUTOMOTIVE ENGINEERS

Mr. CARR. What is the \$95,000 shown in last year's "other services" data, page 598, for the Society of Automotive Engineers?

[The information follows:]

This is a grant between FAA and the Society of Automotive Engineers (SAE). The SAE is a not-for-profit association which conducts an ongoing "Cooperative Engineering Program" of vehicular research encompassing technical problems of design production, application, operation, and safety of aeronautics. The program provides an open technical forum for world aviation experts from industry, government, and the general public to explore state-of-the-art aerospace issues and to develop recommended practices, which are referenced in FAA documents and directly facilitate formulation of airworthiness regulations, technical orders, and guidelines for aircraft certification.

INCREASED COSTS FOR WEATHER OBSERVATION SERVICES

Mr. CARR. In last year's data page on 598, your costs for weather observation services were increasing, from \$13,885,000 in fiscal year 1992 to \$16,498,000 in fiscal year 1993 and \$16,933,000 in fiscal year 1994. With the increased deployment of automated weather observation systems such as AWOS and ASOS, shouldn't this amount be coming down?

[The information follows:]

ASOS equipment has been accepted and is operational at 33 contract weather observation locations. However, until thunderstorm detection capability and telecommunications circuits that are required for commissioning are available, contract weather services will be required.

FSS CONSOLIDATION SCHEDULE

Mr. CARR. In last year's hearing, you stated that you would be able to handle the decrease of 134 FTE's in fiscal year 1994 despite an anticipated workload increase of 23 percent through the decommissioning of 43 flight service stations. How many of these 43 have been decommissioned thus far in fiscal year 1994, and what is your current estimate for decommissionings by the end of this fiscal year?

[The information follows:]

Two flight service stations (FSS) have been decommissioned thus far in fiscal year 1994 (Elizabeth City, North Carolina and Tuscaloosa, Alabama). Attached is the updated decommissioning schedule. Decommissionings are dependent on funding for both permanent change of station (PCS) and contract weather observation (CWO) services. Program is expected to be completed by the end of fiscal year 1996.

TRANSITION SCHEDULE OF REMAINING FLIGHT SERVICE STATIONS

STATE	FACILITY	TYPE	DATE	AFSS
AL	Montgomery	FSS	5/25/94	Anniston
AL	Mobile	FSS	6/8/94	Anniston
MS	Jackson	FSS	7/13/94	Greenwood
FL	Jacksonville	FSS	7/27/94	Gainesville
AK	Bethel	FSS	TBD	Kenai
AK	Gulkana	FSS	TBD	Kenai
AK	Tanana	FSS	TBD	Fairbanks
AL	Birmingham	FSS	TBD	Anniston
AL	Dothan	FSS	TBD	Anniston
AZ	Tucson	FSS	TBD	Prescott
CA	Bakersfield	FSS	TBD	Riverside
CA	Fresno	FSS	TBD	R. Murietta
CA	Red Bluff	FSS	TBD	R. Murietta
CA	Sacramento	FSS	TBD	R. Murietta
CA	Salinas	FSS	TBD	Oakland
CA	Stockton	FSS	TBD	R. Murietta
CO	Eagle	FSS	TBD	Denver
ID	Burley	FSS	TBD	Boise
ID	Idaho Falls	FSS	TBD	Boise
MS	McComb	FSS	TBD	Greenwood
MS	Meridian	FSS	TBD	Greenwood
MT	Butte	FSS	TBD	Great Falls
NM	Carlsbad	FSS	TBD	Albuquerque
NM	Deming	FSS	TBD	Albuquerque
NM	Gallup	FSS	TBD	Albuquerque
NM	Las Vegas	FSS	TBD	Albuquerque
NM	Roswell	FSS	TBD	Albuquerque
NM	Truth or Consq.	FSS	TBD	Albuquerque
NM	Tucumcari	FSS	TBD	Albuquerque
NY	Elmira	FSS	TBD	Buffalo
NY	Utica	FSS	TBD	Buffalo
SD	Watertown	FSS	TBD	Huron
TN	Tri-City	FSS	TBD	Nashville
VA	Newport News	FSS	TBD	Leesburg
WA	Spokane	FSS	TBD	Seattle
WA	Walla Walla	FSS	TBD	Seattle
WV	Bluefield	FSS	TBD	Elkins
WV	Martinsburg	FSS	TBD	Elkins
WV	Morgantown	FSS	TBD	Elkins
WV	Parkersburg	FSS	TBD	Elkins
WY	Sheridan	FSS	TBD	Casper
WY	Worland	FSS	TBD	Casper

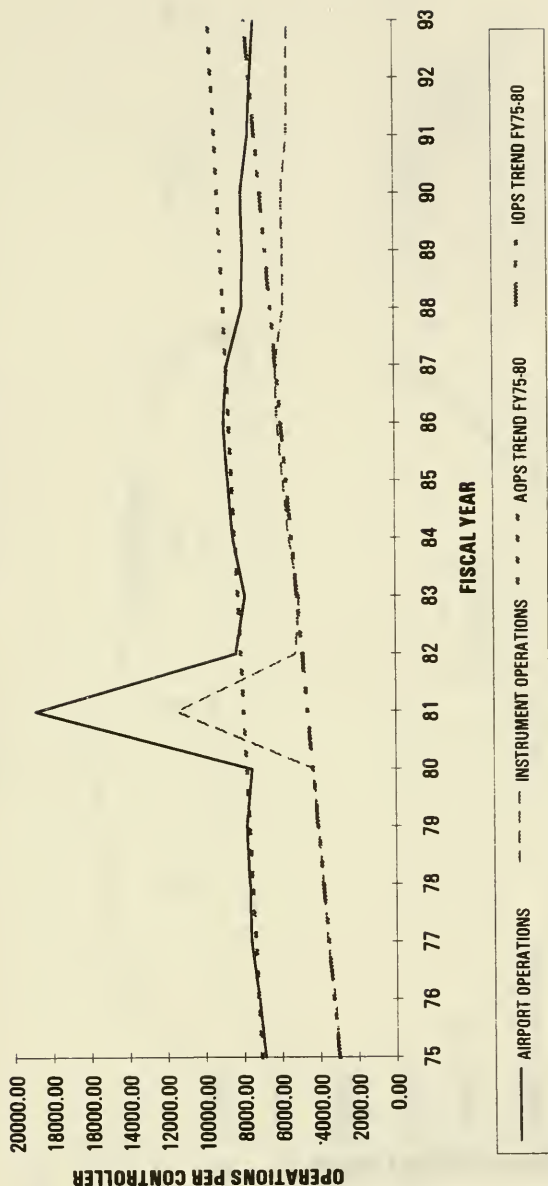
TBD = To Be Determined based on required funding for Permanent Change of Station (PCS), and Contract Weather Observation (CWO) services, and that there is no further congressional language that impacts FSS Consolidations

4/26/94

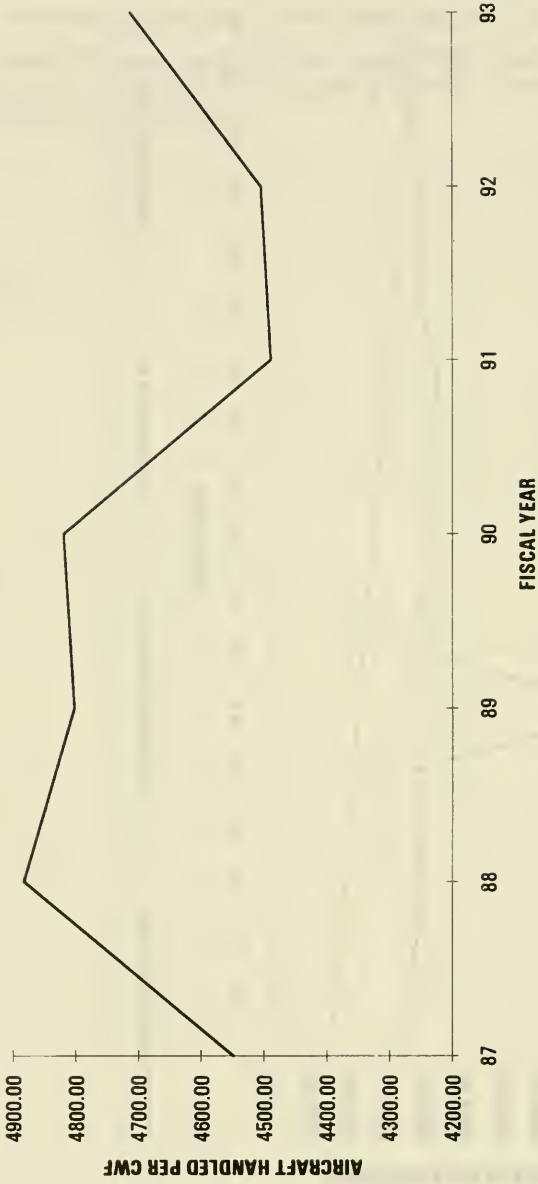
CONTROLLER PRODUCTIVITY PERFORMANCE MEASURES

Mr. CARR. Please update the controller productivity graphs shown on pages 603-607 of last year's hearing record.
[The information follows:]

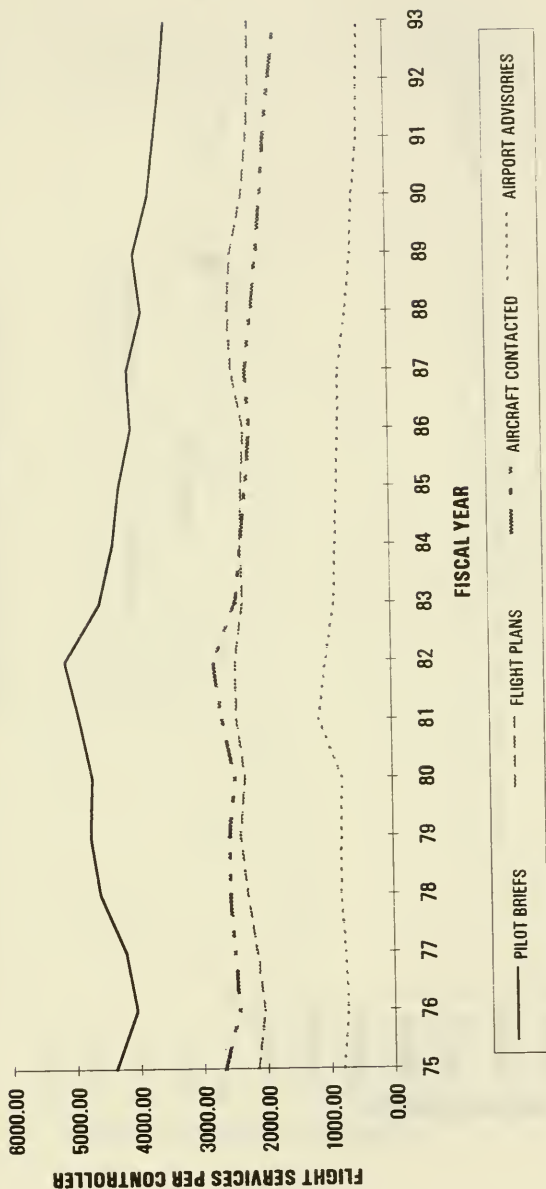
PRODUCTIVITY PER CONTROLLER (TERMINAL)



PRODUCTIVITY PER CWF (CENTERS)



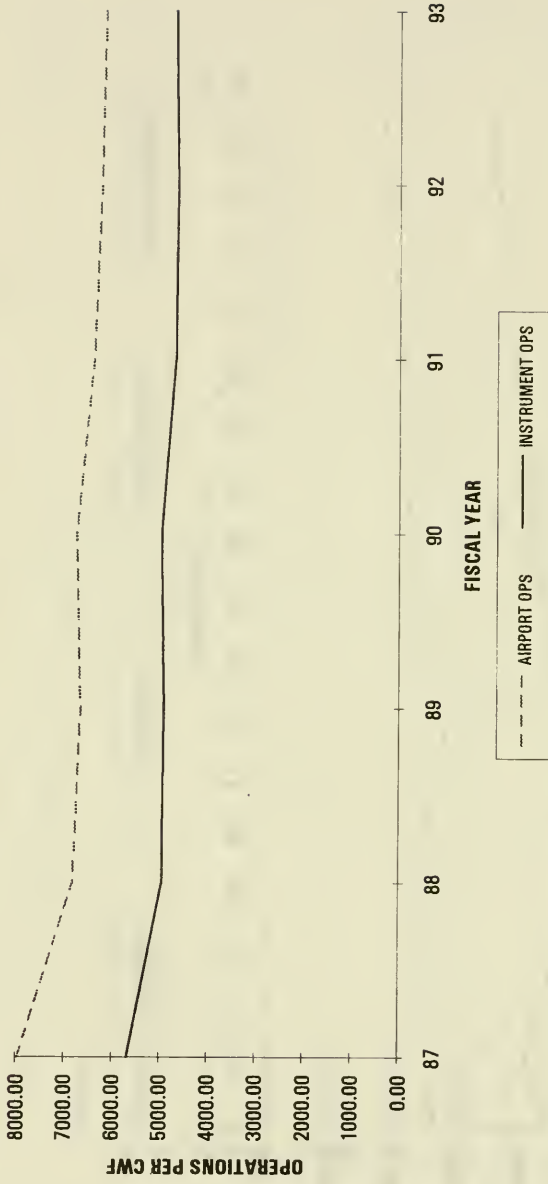
PRODUCTIVITY PER CONTROLLER (STATIONS)



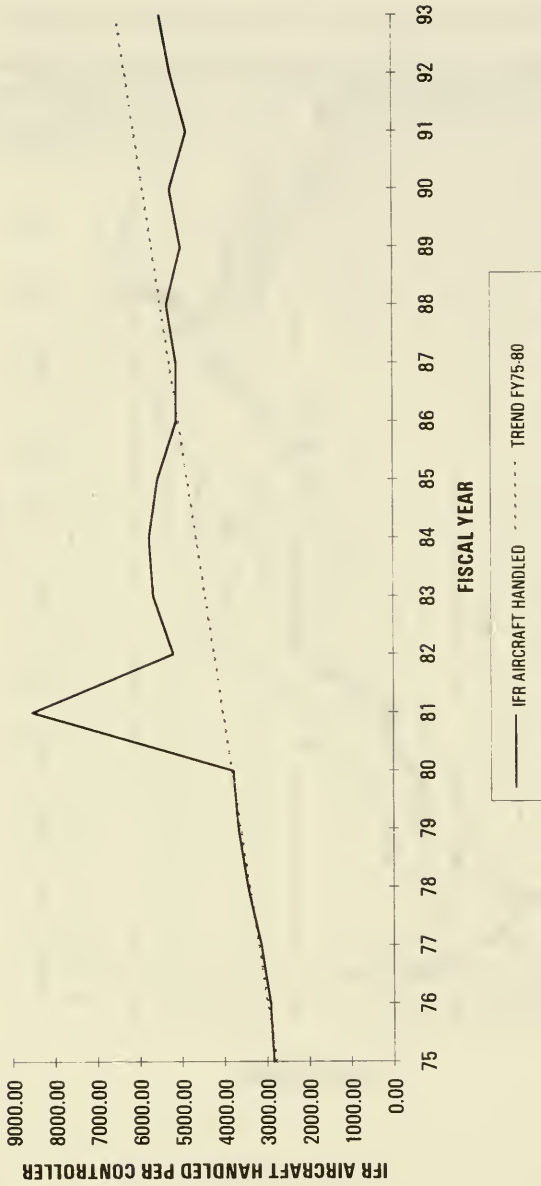
APD-230 4/7/94

(FY 93 Flight Service Station Data is preliminary)

PRODUCTIVITY PER CWF (TERMINALS)

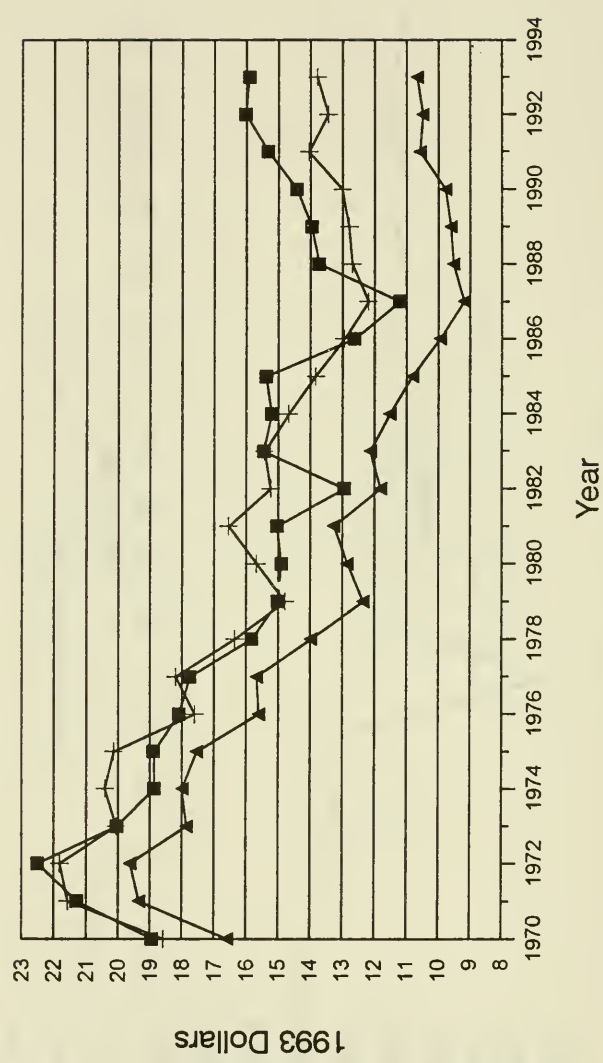


PRODUCTIVITY PER CONTROLLER (ARTCC)



FAA Cost per Passenger Moved

FYs 1970 through 1993



■ FULL BUDGET + AMORTIZED F&E, AIP ▲ AMORTIZED F&E, no AIP

CONTROLLER WORK FORCE END-OF-YEAR EMPLOYMENT

Mr. CARR. Please update the table showing controller work force end of year employment for fiscal years 1991-1995, similar in format to the data shown on page 609 of last year's hearing record. [The information follows:]

CONTROLLER WORK FORCE (End of Year Employment)					
	FISCAL YEAR 1991	FISCAL YEAR 1992	FISCAL YEAR 1993	FISCAL YEAR 1994 (Estimate)	FISCAL YEAR 1995 (Estimate)
CENTERS:					
FPL Controllers	4,822	5,181	5,576	5,693	5,654
Other Controllers	1,536	1,433	1,320	1,336	1,326
First-line Supervisors	856	866	808	748	728
Total Operational Controllers	7,214	7,480	7,704	7,777	7,708
Developmental Pipeline	891	674	243	70	40
Center Controller Work Force	8,105	8,154	7,947	7,847	7,748
TOWERS:					
FPL Controllers	6,310	6,813	6,994	7,093	7,031
Other Controllers	1,364	1,110	1,178	1,155	1,144
First-line Supervisors	1,453	1,508	1,416	1,356	1,335
Total Operational Controllers	9,127	9,431	9,588	9,604	9,510
Developmental Pipeline	489	397	153	72	42
Tower Controller Work Force	9,616	9,828	9,741	9,676	9,552
Centers/Towers Combined:					
FPL Controllers	11,132	11,994	12,570	12,680	12,579
Other Controllers	2,900	2,543	2,498	2,597	2,576
First-line Supervisors	2,309	2,374	2,224	2,104	2,063
Total Operational Controllers	16,341	16,911	17,292	17,381	17,218
Developmental Pipeline	1,380	1,071	396	142	82
Total Controller Work Force	17,721	17,982	17,688	17,523	17,300

AVIATION ACTIVITY FORECASTS

Mr. CARR. Please provide a summary of the most recent air traffic forecast for both domestic and international air travel, updating the information found on page 611 of last year's hearing record.

[The information follows:]

AVIATION ACTIVITY FORECASTS FISCAL YEARS 1994 - 2005

AVIATION ACTIVITY	HISTORICAL			FORECAST		PERCENT AVERAGE ANNUAL GROWTH				
	1985	1992	1993	1994	1995	2005	85-93	92-93	93-94	94-95 93-05
AIR CARRIER										
Enplanements (Millions)										
Domestic	350.4	429.2	428.8	442.7	460.6	645.9	2.6	(0.1)	3.2	4.0 3.5
International	24.3	42.6	45.0	47.7	51.5	96.3	8.0	5.6	6.0	8.0 6.5
Atlantic	11.4	14.8	15.6	16.3	17.4	30.1	4.0	5.4	4.5	6.7 5.6
Latin America	7.9	13.6	15.8	17.3	19.2	39.2	7.1	16.2	9.5	11.0 7.9
Pacific	5.0	14.2	13.6	14.1	14.9	27.0	13.3	(4.2)	3.7	5.7 5.9
System	374.5	471.8	473.8	490.4	512.1	742.2	3.1	0.4	3.5	4.4 3.8
RPMs (Billions)										
Domestic	265.8	346.5	346.8	358.6	374.0	537.4	3.4	0.1	3.4	4.3 3.7
International	64.4	128.5	134.4	141.2	151.6	279.6	2.6	4.6	5.1	7.4 6.3
Atlantic	36.1	57.7	61.1	64.2	68.4	120.0	6.8	5.9	5.1	6.5 5.8
Latin America	9.7	17.1	20.8	22.9	25.6	54.1	10.0	21.6	10.1	11.8 8.3
Pacific	18.6	53.6	52.5	54.1	57.6	105.5	13.8	(2.1)	3.1	6.5 6.0
System	330.2	475.0	481.2	499.8	525.6	817.0	4.8	1.3	3.9	5.2 4.5
COMMUTERS/REGIONALS										
Enplanements (Millions)										
RPMs (Billions)	24.4	42.8	47.2	52.0	56.5	105.3	8.6	10.3	10.2	8.7 6.9
	3.6	8.2	9.5	10.7	11.9	25.3	12.9	15.9	12.6	11.2 8.5
FLEET										
Air Carrier	2,938	4,203	4,247	4,363	4,396	6,063	4.7	1.1	2.7	0.8 3.0
Commuter	1,551	1,960	2,064	2,157	2,262	2,936	3.6	5.3	4.5	4.9 3.0
General Aviation (000)	220.9	198.5	184.4	180.9	178.4	177.4	(2.3)	(7.1)	(1.9)	(1.4) (0.3)
HOURS FLOWN (Millions)										
Air Carrier	7.7	10.7	11.1	11.5	11.6	16.6	4.7	3.7	3.6	0.9 3.4
General Aviation	36.2	27.4	25.8	26.1	26.3	28.9	(4.3)	(5.8)	1.2	0.8 1.0

Source: 1985-93; DOT-RSPA, FAA data
1994-2005; FAA forecast

FSS CONSOLIDATION SCHEDULE

Mr. CARR. Please update the transition schedule of remaining flight service station consolidations shown on pages 613-614 of last year's hearing record.

[The information follows:]

TRANSITION SCHEDULE OF REMAINING FLIGHT SERVICE STATIONS

STATE	FACILITY	TYPE	DATE	AFSS
AK	Barrow	XFSS	TBD	Fairbanks
AK	Bethel	FSS	TBD	Kenai
AK	Cold Bay	XFSS	TBD	Kenai
AK	Deadhorse	XFSS	TBD	Fairbanks
AK	Dillingham	XFSS	TBD	Kenai
AK	Gulkana	FSS	TBD	Kenai
AK	Homer	XFSS	TBD	Kenai
AK	Iliamna	XFSS	TBD	Kenai
AK	Katchikan	XFSS	TBD	Juneau
AK	Kotzebue	XFSS	TBD	Fairbanks
AK	McGrath	XFSS	TBD	Kenai
AK	Nome	XFSS	TBD	Fairbanks
AK	Northway	XFSS	TBD	Fairbanks
AK	Palmer	XFSS	TBD	Kenai
AK	Sitka	XFSS	TBD	Juneau
AK	Talkeetna	XFSS	TBD	Kenai
AK	Tanana	FSS	TBD	Fairbanks
AL	Birmingham	FSS	TBD	Anniston
AL	Dothan	FSS	TBD	Anniston
AL	Mobile	FSS	8/8/94	Anniston
AL	Montgomery	FSS	5/25/94	Anniston
AL	Muscle Shoals	XFSS	TBD	Anniston
AL	Tuscaloosa	FSS	3/31/94	Anniston
AZ	Tucson	FSS	TBD	Prescott
CA	Arcata	XFSS	TBD	Oakland
CA	Bakersfield	FSS	TBD	Riverside
CA	Fresno	FSS	TBD	R. Murietta
CA	Marysville	XFSS	TBD	R. Murietta
CA	Rod Bluff	FSS	TBD	R. Murietta
CA	Sacramento	FSS	TBD	R. Murietta
CA	Salinas	FSS	TBD	Oakland
CA	Stockton	FSS	TBD	R. Murietta
CA	Ukiah	XFSS	TBD	Oakland
CO	Eagle	FSS	TBD	Denver
FL	Crestview	XFSS	TBD	Gainesville
FL	Jacksonville	FSS	7/27/94	Gainesville
ID	Burley	FSS	TBD	Boise
ID	Idaho Falls	FSS	TBD	Boise
KY	Bowling Green	XFSS	TBD	Louisville
KY	London	XFSS	TBD	Louisville
MD	Salisbury	XFSS	TBD	Leesburg
MI	Marquette	XFSS	TBD	Green Bay
MS	Jackson	FSS	7/13/94	Greenwood
MS	McComb	FSS	TBD	Greenwood

TBD = To Be Determined based on required funding for PCS and Contract Weather Observations and that there is no further congressional language that impacts FSS Consolidations

TRANSITION SCHEDULE OF REMAINING FLIGHT SERVICE STATIONS

STATE	FACILITY	TYPE	DATE	AFSS
MS	Meridian	FSS	TBD	Greenwood
MT	Bozeman	XFSS	TBD	Great Falls
MT	Butte	FSS	TBD	Great Falls
NC	Eliz. City	FSS	3/31/94	Raleigh
NC	Hickory	XFSS	TBD	Raleigh
NC	New Bern	XFSS	TBD	Raleigh
NC	Rocky Mount	XFSS	TBD	Raleigh
NM	Carlsbad	FSS	TBD	Albuquerque
NM	Deming	FSS	TBD	Albuquerque
NM	Gallup	FSS	TBD	Albuquerque
NM	Las Vegas	FSS	TBD	Albuquerque
NM	Roswell	FSS	TBD	Albuquerque
NM	Truth or Consq.	FSS	TBD	Abuquerque
NM	Tucumcari	FSS	TBD	Albuquerque
NY	Elmira	FSS	TBD	Buffalo
NY	Utica	FSS	TBD	Buffalo
OR	Redmond	XFSS	TBD	McMinnville
PA	Bradford	XFSS	TBD	Altoona
PA	Dubois	XFSS	TBD	Altoona
SD	Pierre	XFSS	TBD	Huron
SD	Watertown	FSS	TBD	Huron
TN	Tri-City	FSS	TBD	Nashville
VA	Newport News	FSS	TBD	Leesburg
WA	Spokane	FSS	TBD	Seattle
WA	Walla Walla	FSS	TBD	Seattle
WV	Bluefield	FSS	TBD	Elkins
WV	Martinsburg	FSS	TBD	Elkins
WV	Morgantown	FSS	TBD	Elkins
WV	Parkersburg	FSS	TBD	Elkins
WY	Sheridan	FSS	TBD	Casper
WY	Worland	FSS	TBD	Casper

TBD= To Be Determined based on required funding for PCS and Contract Weather Observations and that there is no further congressional language that impacts FSS Consolidations

AIR TRAFFIC EN ROUTE CENTERS—POSITIONS & EMPLOYMENT

Mr. CARR. Please update the table found on page 616 of last year's hearing record showing authorized positions and employment for each of your en route centers.

[The information follows:]

AIR TRAFFIC CENTER POSITIONS AND EMPLOYMENT					
LOCATION	CENTER CODE	AUTHORIZED STAFFING FY-93	CURRENT ON-BOARD STAFFING*	DEV. CONTROLLERS ON-BOARD*	FPL'S ON-BOARD*
Anchorage, AK	ZAN	152	143	16	110
Kansas City, MO	ZKC	471	415	58	313
Washington, DC	ZDC	476	437	60	327
New York, NY	ZNY	335	362	83	238
Chicago, IL	ZAU	498	497	101	349
Indianapolis, IN	ZID	419	382	73	278
Minneapolis, MN	ZMP	342	381	98	247
Cleveland, OH	ZOB	526	462	70	351
Boston, MA	ZBW	312	342	56	247
Denver, CO	ZDV	369	360	75	249
Salt Lake City, UT	ZLC	235	243	34	182
Seattle, WA	ZSE	236	261	35	197
Jacksonville, FL	ZJX	411	402	91	271
Miami, FL	ZMA	257	350	77	240
Memphis, TN	ZME	372	357	67	253
San Juan, PR	ZSU	55	54	12	30
Atlanta, GA	ZTL	512	525	100	373
Albuquerque, NM	ZAB	392	360	60	262
Ft. Worth, TX	ZFW	444	414	90	282
Houston, TX	ZHU	368	411	117	255
Honolulu, HI	ZHN	61	53	14	32
Los Angeles, CA	ZLA	383	374	99	240
Oakland, CA	ZOA	392	318	79	205
Agana, GU	ZUA	15	13	0	12
Central Flow	CFCF	70	31	0	31
	TOTALS	8,103	7,947	1,565	5,574

*Data from CPMIS as of September 30, 1993.

NOTE: Authorized Staffing (per Staffing Standard) and current on-board staffing refers to total controller work force.

GENERAL AVIATION INSTRUMENT OPERATIONS

Mr. CARR. Please update the information on general aviation instrument operations found on page 617 of last year's hearing record.

[The information follows:]

GENERAL AVIATION INSTRUMENT OPERATIONS AT FAA TOWER AIRPORTS

[In millions]

Year	General aviation operations	Total operations	GA operations as a percent of total
1985	16.4	38.7	42.4
1986	16.8	40.5	41.5
1987	17.9	43.4	41.2
1988	18.3	44.5	41.1
1989	18.6	45.0	41.3
1990	19.1	46.8	40.8
1991	18.1	45.1	40.1
1992	18.2	45.6	39.9
1993	17.7	45.7	38.7
1994	17.9	46.2	38.7
1995	18.1	47.0	38.5

NOTE.—1994 and 1995 are forecast.

LOGISTICS CENTER—O&M COSTS

Mr. CARR. Please update the data on costs to operate and maintain the FAA Logistics Center in Oklahoma City as shown on pages 621–622 of last year's hearing record by providing data for fiscal years 1993 through 1995.

[The information follows:]

[Dollars in thousands]

	Fiscal year—		
	1993	1994	1995
Positions	620	638	638
FTE's	569.4	627.2	627.2
PC&B	26,864.4	30,082.3	30,082.3
(Overtime)	(569.4)	(627.2)	(627.2)
Subtotal	26,864.4	30,082.3	30,082.3
Travel	297.6	300.9	300.9
Utilities	983.2	1,032.0	1,136.9
Transportation	2,609.0	3,444.2	4,009.2
Printing	1,019.4	981.0	980.3
Contracts:			
NSS supply support	15,572.8	16,195.8	18,889.5
Raytheon (A-76)	3,315.1	3,373.0	3,373.0
Guard	149.9	159.4	162.8
Janitorial	103.0	118.2	120.7
Facility/grounds maintenance	1,173.8	1,080.6	1,241.9
Equipment maintenance	21.0	28.4	28.4
Other	521.8	517.2	517.2
Copiers	60.0	54.9	54.9
Office moves	28.9	29.5	33.7
Motor fleet	57.2	61.0	61.0
Multimedia	16.9	11.4	13.6
Supplies	45,464.0	44,102.3	51,597.6
Equipment	2,113.2	12.0	12.0
Interfunctional equipment	10.0	12.0	12.0

(Dollars in thousands)

	Fiscal year—		
	1993	1994	1995
Subtotal other objects	73,516.6	71,513.8	82,545.6
Total program	100,381.0	101,596.1	112,627.9
Total NSS supply support	64,647.0	66,000.0	76,754.0

STOCKS AND STORES—INITIAL REQUEST

Mr. CARR. You are requesting \$81,817,000 for spares and repairs for fiscal year 1995. How does this compare to the Logistics Center's initial request?

[The information follows:]

The NAS Logistics subactivity entitled Acquisition of Spares and Repairs is requesting \$81,817,000 in other objects. Of that total, \$76,754,000 is to be used for depot spare and repair funding. The remaining \$5,063,000 is to be used for a variety of object classes, primarily second destination charges and FAA Academy maintenance. The Logistics Center originally requested \$114,786,100 for depot spare and repair funding.

DEPOT SPARE FUNDING

Mr. CARR. Please update the table on page 623 of last year's hearing record regarding depot spare funding requests by providing data for fiscal years 1990–1995.

[The information follows:]

DEPOT SPARE FUNDING—NAS SUPPLY SUPPORT

	Request (spare parts plus E&R)	(Amount requested for procurement of spare parts)	Allowance (spare parts plus E&R)
1990	68,235.5	55,953.0	170,623.6
1991	70,244.0	57,600.1	167,167.1
1992	80,709.8	66,201.0	164,894.4
1993	95,371.1	77,552.0	164,647.0
1994	117,288.2	74,339.6	66,000.0
1995	114,786.1	75,515.0	.....

¹Actual Obligations.

CONTRACT MAINTENANCE SUPPORT CONTRACTS

Mr. CARR. Please update the listing of major contracts for maintenance of NAS systems and equipment, similar in format to that shown on page 624 of last year's hearing record, by providing data for fiscal years 1994 and 1995.

[The information follows:]

Millions of Dollars

Contract Maintenance (Hardware) Support Contracts	FY 1994	FY 1995
AWOS Data Acquisition System	0.2	0.7
Automated Surface Observation System	1.5	3.5
Airport Weather Information System	0.3	0.3
Airport Weather Observation System	1.5	1.5
Classified Communication System	0.1	0.2
Digital Altimeter Setting Indicator	0.1	0.0
Data Link Processor	0.5	1.3
Data Multiplexing Network	0.6	2.4
Dynamic Ocean Track System	0.6	0.6
Enhanced Traffic Management System	2.0	3.0
Flight Data Input/Output	0.0	0.2
Harmonic Cancellation System	0.1	2.1
Maintenance of Host Computer	3.8	3.8
Host Computer License	0.2	0.2
Host Data Link		0.3
Integrated Communications Switching System	14.9	14.9
Maintenance Control Center	0.1	0.1
Maintenance Data Terminal	0.3	1.0
Model 1 FSAS Full Capacity	6.5	0.2
Maintenance Processor System	0.3	0.4
Meteorological Weather Processor System	3.0	4.8
National Radio Communication System	0.2	0.3
Next Generation Radar	1.9	1.9
Oceanic Display and Planning System	0.1	2.2
Off-Shore Flight Data Processing System	0.1	1.1
Peripheral Adapter Module Replacement Item	0.2	0.3
Pre-Departure Clearance System	0.0	4.5
Weather Message Switching Center Replacement	0.2	0.2
TOTAL CONTRACT MAINTENANCE	<u>39.3</u>	<u>52.0</u>

This exhibit includes major contracts for maintenance of NAS systems and equipment under the Maintenance of Traffic Control System budget activity only. On the exhibit for "Other Services", contract maintenance support contracts for the Maintenance of Traffic Control budget activity are included under the following line items: contract maintenance, maintenance of host computer, and maintenance of integrated communication switching system.

CONTRACT MAINTENANCE

Mr. CARR. Please update the chronological data on contract maintenance shown on page 626 of last year's hearing record.
[The information follows:]

Total contract maintenance (hardware) cost

Fiscal year:	Thousands
1991	19,300.0
1992	23,462.0
1993	36,614.5
1994	39,243.6
1995	51,883.6

The increase can be attributed to additional system implementation, system funding responsibility transferring from F&E to OPS, new maintenance contracts, and modifications to existing contracts.

COMMISSIONED FACILITIES

Mr. CARR. In your fiscal year 1993 budget request, you assumed commissioning of 427 new facilities. By the time of last year's hearing, that figure was down to 370. What was the final number at the end of fiscal year 1993?

[The information follows:]

The final number of major facilities commissioned during fiscal year 1993 was 452. The number has increased because we have combined some facilities that we reported previously, with types of facilities that were not previously reported but provide the same or similar upgrade service. For example, commissionings of Automated Weather Observing Systems now include Automated Surface Observing Systems, which provide the same type of services. This change was made to provide a more accurate view of facilities being commissioned.

Mr. CARR. Please update the table on fiscal year 1993 commissionings shown on page 628 of last year's hearing record by adding a column for end of fiscal year commissionings.

[The information follows:]

FY 1993 Commissioned Facilities

Facility Name	Congressional Submission	Change	4/15/93 Revised Estimate	Change	4/22/94 Actual
Air route surveillance radar	7	-7	0	0	0
ATC beacon interrogator	3	-3	0	3	3
FAA operated tower	2	-2	0	3	3
FAA contract tower	7	-1	6	-6	0
Limited radar approach control tower	0	0	0	1	1
Full radar approach control tower	0	0	0	1	1
Terminal radar approach control (TRACON only)	0	0	0	1	1
Airport surface detection eqpt	23	-14	9	-8	1
Airport surveillance radar	12	-1	11	-4	7
ATC radar beacon	13	3	16	-13	3
Automated radar terminal system	9	-7	2	-2	0
Mode-S	0	0	0	6	6
Radio communications link repeater	42	14	56	63	119
Radio communications link terminal	29	11	40	-23	17
Automated flight service stations	2	0	2	-2	0
Auxiliary flight service stations	23	-23	0	0	0
Flight service data processing sys	7	-7	0	4	4
Automated wx observation sys	32	3	35	34	69
Next generation weather radar	28	-13	15	-15	0
Direction finder equipment	21	-19	2	1	3
Remote communications facility	7	27	34	-18	16
Remote communications outlet	18	-1	17	12	29
Approach light system	10	-9	1	31	32
Distance measuring system	3	1	4	13	17
Instrument landing system	39	-12	27	-3	24
Lead-in light facility	3	-3	0	2	2
Microwave landing system	9	-9	0	0	0
Omnidirectional airport lighting system	3	-2	1	0	1
Runway end identification light	30	38	68	-40	28
Runway visual range	38	-18	20	-17	3
Tactical air navigation equipment	5	-5	0	0	0
VHF omnidirectional range	0	0	0	7	7
Visual approach slope indicator	2	2	4	51	55
TOTAL	427	-57	370	82	452

FIELD MAINTENANCE—OTHER OBJECT COSTS

Mr. CARR. Please update the table on field maintenance costs as shown on page 629 of last year's hearing record by providing data for fiscal years 1993 and 1994.

[The information follows:]

The following represents the breakdown of other objects costs for field maintenance:

[In thousands of dollars]

	Fiscal year—	
	1993	1994
Travel	14,400	11,774
Transportation	11,372	9,963
RC&U	81,414	86,471
Printing and reproduction	25	203
Other services	62,867	69,784
Supplies and materials	10,517	5,573
Equipment	3,481	697
Land and structures	104	47
Insurance claims	106	91
Total	184,286	184,603

LINCS—SCHEDULE

Mr. CARR. Last year, you told the Committee that the LINCS backbone between ARTCCs would be in place by September 1993. Did you meet that schedule? If not, why not?

[The information follows:]

The physical installation to establish the backbone was completed in September 1993 and the system was accepted for service in October 1993.

LINCS—FUNDING PROFILE

Mr. CARR. Please update the LINCS funding profile shown on page 629 of last year's hearing record.

[The information follows:]

Funding profile

<i>Implementation cost</i>	
<i>Fiscal years:</i>	<i>In millions</i>
1992	\$14.9
1993	7.8
1994	11.4
1995	13.6
1996	15.8

LINCS—RECURRING SAVINGS

Mr. CARR. Last year, you told us that, even though LINCS would eventually save 5 to 10 percent of the costs assumed under the leased telecommunications program, those savings would be offset by implementation costs until the network is completed. According to data last year, implementation costs ended in fiscal year 1994.

Does that indicate that your fiscal year 1995 budget assumes recurring savings from LINCS, and if so, how much is assumed?

[The information follows:]

The funding data provided last year did not address funding beyond fiscal year 1994. Implementation of LINCS will not be completed until FY-96. As stated in the

past, some savings in channel costs will be realized as services are transferred to LINCS and existing channels disconnected. These savings will continue to be offset until full implementation is completed.

LINCS—DETAILED SCHEDULE

Mr. CARR. Please provide a detailed schedule for your LINCS activities planned for the next year.

[The information follows:]

The LINCS program is currently in the implementation phase. Implementation consists of establishing the infrastructure and then implementation of channels. The infrastructure to establish the backbone throughout the entire National Airspace System (NAS) is targeted for completion in December 1994. Currently, the infrastructure is complete in seven of the twenty air route traffic control center (ARTCC) airspaces. Concurrently, with the infrastructure being established, channels are being transitioned. By the end of 1994, approximately 5,500 channels are expected to be in service on the LINCS network. Implementation will continue during 1995 with approximately 5,000 channels being provisioned. Implementation of the remaining channels, approximately 3,500, will be completed during FY 1996.

LEASED TELECOMMUNICATIONS SERVICES

Mr. CARR. Please update the table on leased services shown on pages 631-633 of last year's hearing record.

[The information follows:]

1. Enroute Data Services:

BDAT--Enroute Beacon Digitized Data	\$31,991
RDAT--On Route Radar Digitized Data	547,108
ENAV--Enroute Navigational Aids	6,610,525
ERAD--Enroute Broadband Radar	10,939
ESEC--Enroute Broadband Secondary Radar	0
IDAT--Interfacility Data	<u>358,825</u>
	7,559,388

=====

2. Enroute Voice Services:

CFCS--Central Flow Control Service	\$1,700,837
ECOM--Enroute Communications	21,610,155
ESYS--Enroute Equipment Systems	21,742,713
SVFA--Interphone Service F(A)	5,787,085
SVFB--Interphone Service F(B)	<u>17,832,007</u>
	\$68,672,797

=====

3. Terminal Data Services:

FDAT--Flight Data Entry and Printout (FDEP) and Flight Data Service	\$491,143
RTAD--Remote Tower Alpha Display	0
RTRD--Remote Tower Radar Display	311,774
TARS--Terminal Automated Radar Service	0
TRAD--Terminal Radar Service	928,484
TSEC--Terminal Secondary Radar Service	169
TNAV--Terminal Navigational AIDS	1,094,728
VNAV--Visual Navigational AIDS	<u>108,665</u>
	\$2,934,963

=====

4. Terminal Voice Services:

ATIS--Automatic Terminal Information Svc	\$31,785
SVFC--Interphone Service F(C)	4,482,013
TCOM--Terminal Communications	3,141,024
TSYS--Terminal Equipment Systems	<u>31,547,112</u>
	\$39,201,934

=====

5. Flight Service Station/Weather Data Svc:

AFTN--Aeronautical Fixed Tels. Network	\$137,308
AWOS--Automatic Weather Observation Sys	717,049
FSAD--Flight Service Automated Data	0
LABS--Leased A B Service	15,068,007
METI--Meteorological Information	2,292,544
NFAX--National Facsimile Service	178,186
DFAX--Digital Facsimile Service	159,348
RWDS--Remote Radar Weather Display Svc	2,104,793
SVCA--Service A	317,606
SVCB--Service B	75,120
SVCO--Service O	46,704
	<u>\$21,096,665</u>
	=====

6. Flight Service Station/Weather Voice Svc:

DIRF--Direction Finding	\$1,411,460
EFAS--Enroute Flight Advisory	2,267,261
FCOM--FSS Radio Voice Comms	10,724,215
FSYS--FSS Equipment Systems	6,697,963
PBRF--Pilot Briefing	<u>2,818,680</u>
	<u>\$23,919,579</u>
	=====

7 Communications Utilities Data Svc:

ADIN--Autodin Service	\$ 5,740,437
DMN --Data Multiplexing Network	10,692,354
NAMS--NADIN Message Processing Service (NADIN 1A)	733,792
NDNB--NADIN II Dial Back-Up Circuits	<u>620,579</u>
	<u>\$17,787,162</u>
	=====

8. Communications Utilities Voice Svc. Enroute Data Services:

AVON--Autovon Service	\$1,706,581
	<u>\$1,706,581</u>
	=====

9. Other Data Services:

ADDA--Administrative Data	\$2,054,670
MNTC--Maint. Monitoring Systems; Remote Maintenance Monitoring Sys (RMMS), Maintenance Monitoring Systems (MMS)	2,382,165
	<u>\$4,436,835</u>
	=====

10. Other Voice Services:

CCCC--Staff Communications	\$2,511,720
ADSY--Administrative Equip. Sys	8,178,517
ADVO--Administrative Voice	14,410,567
EVCS--Emergency Voice Comm. System	386,740
ETN---Electronic Tandem Network	418,069
MISC--Miscellaneous	28,223,017
NRCS--National Radio Comms. System	100,316
SVFD--Interphone Service F(D)	3,755,274
TRNG--Training	<u>181,388</u>
	58,165,607
	=====
Subtotal	\$245,481,511

Contracts:

ARINC	14,199,000
Other Contracts	32,664,330
Administrative Telecommunications	<u>32,165,159</u>
Subtotal	\$79,028,489
 TOTAL	 \$324,510,000

SECURITY AIRLINE PASSENGER SCREENING RESULTS

Mr. CARR. Please update the data on civil aviation security airline passenger screening results shown on page 641 of last year's hearing record by providing data for 1987-1993. In addition, state whether the data is measured in fiscal years or calendar years.

[The information follows:]

CIVIL AVIATION SECURITY AIRLINE PASSENGER SCREENING RESULTS

	CY 1987	CY 1988	CY 1989	CY 1990	CY 1991	CY 1992	CY 1993
PERSONS SCREENED (MILLIONS)	1,095.6	1,054.9	1,113.3	1,145.1	1,012.0	1,306.0	1,150.0
WEAPONS DETECTED:							
FIREARMS	3,252	2,773	2,879	2,853	2,159	2,573	2,798
(1) HANDGUNS	3,012	2,591	2,397	2,490	1,858	2,213	2,707
(2) LONG GUNS	99	74	92	59	61	51	91
DANGEROUS ARTICLES	141	108	390	304	240	283	3,867
EXPLOSIVES/INCENDIARY DEVICES	14	11	26	15	70	26	251
PERSONS ARRESTED:							
FOR CARRIAGE OF FIREARMS/EXPLOSIVES	1,581	1,493	1,436	1,334	900	1,259	1,354
FOR GIVING FALSE INFORMATION	81	222	83	18	28	13	31

*CY= Calendar Year

TECHNICAL CENTER BUDGET AND STAFFING DATA

Mr. CARR. Please update the budget and staffing data on the FAA Technical Center shown on page 643 of last year's hearing record by providing data for fiscal years 1994 and 1995.

[The information follows:]

FEDERAL AVIATION ADMINISTRATION TECHNICAL CENTER

	Fiscal year 1994 enacted		Fiscal year 1995 requested	
	Positions	Amount	Positions	Amount
Operations: (direct controlled):				
NAS design and management	165	26,072,100	158	26,166,900
Director, staff and support	37	2,984,000	37	2,819,100
Human resource management	24	1,703,000	23	1,640,000
Subtotal—direct controlled	226	30,759,100	218	30,626,000
Operations: (straightlined/tenant):				
Systems maintenance:				
Operational support service	450	35,592,600	444	46,180,477
Leased telecommunications	0	591,100	0	606,500
Subtotal	450	36,183,700	444	46,786,977
Medical:	1	62,000	1	60,000
Chief counsel	7	563,800	7	528,400
Civil aviation security	5	241,000	5	240,720
Subtotal—straightlined/tenant	463	37,050,500	457	47,616,097
Operations—total	689	67,809,600	675	78,242,097
Facilities and equipment (F&E):				
Technical center (ACT)	345	45,881,600	345	45,902,906
Operational support service	27	2,071,100	27	2,105,000
Office of independent operational test and evaluation (IOT&E) oversight	16	1,137,400	16	1,155,988
Facilities and equipment—total	388	49,090,100	388	49,163,894
Research, engineering and development (R,E&D):				
Conduct of test and evaluation	405	109,875,000	405	123,697,000
Total program, technical center	1,482	226,774,700	1,468	251,102,991
Distribution by appropriation:				
Operations	689	67,809,600	675	78,242,097
Facilities and equipment	388	49,090,100	388	49,163,894
Research, engineering and development	405	109,875,000	405	123,697,000
Total	1,482	226,774,700	1,468	251,102,991

Notes.—Operations programs are divided between direct control (assigned to act) and straightlined/tenant. F&E reflects separate lines for positions and related dollars (excludes national travel) for act and tenant. F&E includes research, test and evaluation functions where act has program responsibility. RE&D reflects in-house dollars assigned to act and x-contract dollars sponsored by act.

FINANCIAL AND STAFFING RESOURCES

Mr. CARR. Please update the breakdown of financial and staffing resources for each office under the budget activity "direction, staff and supporting services" by providing data for fiscal years 1993–1995. The data should be similar in format to that shown on page 650 of last year's hearing record.

[The information follows:]

Direction, Staff, and Supporting Services

Financial and Staffing Resources
FY 1993 - 1995

Authorized Positions

REGION/CENTER/HQ	ACTUAL FY 1993	EST FY 1994	EST FY 1995
New England	32	32	30
Eastern	88	88	83
Southern	136	136	128
Southwest	83	83	78
Great Lakes	48	48	45
Central	79	79	74
Northwest Mountain	48	48	45
Western Pacific	108	108	102
Alaskan	54	54	51
REGION SUB-TOTAL	676	676	636
Aeronautical Center	266	273	257
Technical Center	37	37	35
CENTER SUB-TOTAL	303	310	292
Information Technology	55	55	52
Policy, Planning, & International Aviation	33	36	34
Accounting	30	30	28
Budget	0	0	0
Headquarters SUB-TOTAL	118	121	114
DS&SS OTHER TOTAL	1,097	1,107	1,042
General Counsel	337	337	319
TOTAL	1,434	1,444	1,361

Authorized positions are higher in FY 1994 than the request due to technical adjustments. However onboard staffing will be reduced in FY 1994 and an additional 40 in FY 1995.

Financial Resources (\$000)

	ACTUAL FY 1993	EST FY 1994	EST FY 1995
	3,228	2,832	2,698
	6,783	6,603	6,305
	8,645	8,875	8,497
	5,101	5,197	4,963
	4,566	4,254	4,052
	5,406	5,203	4,953
	4,393	4,231	4,034
	7,390	7,015	6,709
	5,077	5,069	4,823
	50,589	49,279	47,033
	21,959	20,649	20,030
	3,046	2,984	2,849
	25,005	23,633	22,880
	34,786	29,970	29,871
	13,021	13,251	12,098
	2,677	2,637	2,521
	1,576	2,092	2,095
	52,060	47,950	46,586
	127,654	120,862	116,499
	25,422	25,852	24,578
	153,076	146,714	141,077

OFFICE OF CHIEF COUNSEL—SENIOR POSITIONS

Mr. CARR. Please update the listing of the 25 most senior positions in the office of chief counsel, as shown on pages 652-653 of last year's hearing record. Please indicate which, if any, of these positions are currently unfilled.

[The information follows:]

OFFICE OF THE CHIEF COUNSEL SENIOR STAFF

	<u>TITLE</u>	<u>GRADE</u>	<u>SALARY</u>
1.	Chief Counsel	SES	\$111,839
2.	Deputy Chief Counsel	SES	\$111,839
3.	Assistant Chief Counsel for International Affairs and Legal Policy	GM-15	\$84,470
4.	Assistant Chief Counsel for Legislation	SES	\$106,106
5.	Assistant Chief Counsel for General Legal Services	SES	\$101,800
6.	Assistant Chief Counsel for Regulations	SES	\$111,839
7.	Assistant Chief Counsel for Enforcement	GM-15	Vacant
8.	Assistant Chief Counsel for Litigation	SES	\$111,839
9.	Assistant Chief Counsel for Procurement Law	SES	Vacant
10.	Assistant Chief Counsel for Airports/ Environmental Law	GM-15	\$90,252
11.	Special Counsel and Director of Civil Penalty Adjudication	SES	Vacant
12.	Manager, Program Management Staff	GM-15	\$74,054
13.	Special Counsel to the Chief Counsel	GM-15	\$78,683
14.	Assistant Chief Counsel Alaskan Region	GM-15	\$75,490
15.	Assistant Chief Counsel New England Region	GM-15	\$79,619
16.	Assistant Chief Counsel Southern Region	GM-15	Vacant
17.	Assistant Chief Counsel Southwest Region	GM-15	\$77,510
18.	Assistant Chief Counsel Central Region	GM-15	\$89,446
19.	Assistant Chief Counsel Great Lakes Region	GM-15	\$80,693
20.	Assistant Chief Counsel Northwest- Mountain Region	GM-15	\$88,453
21.	Assistant Chief Counsel Western-Pacific Region	GM-15	\$113,405
22.	Assistant Chief Counsel Aeronautical Center	GM-15	\$89,481
23.	Assistant Chief Counsel Technical Center	GM-15	\$85,064

The remaining 9 senior positions are Deputy Assistant Chief Counsel, GM-15, located in our headquarters and regional offices.

FAA OVERSEAS PERSONNEL

Mr. CARR. Please update the listing of FAA personnel stationed overseas shown on pages 656-658 of last year's hearing record. [The information follows:]

LIST OF FAA PERSONNEL STATIONED OVERSEAS

	RETIRE	PP-SER	-GR	SALARY	TITLE
ARGENTINA	K	GM-1801-14		060403	CAS LIAISON OFFICER
BELGIUM	K	GS-0080-14		058515	SECURITY OFFICER
BELGIUM	4	AD-0301-00		055707	TECHNICAL ASSISTANT
BELGIUM	4	AD-0341-00		044566	ADMINISTRATIVE ASST
BELGIUM	C	GS-0301-14		073619	EXECUTIVE OFFICER
BELGIUM	1	GM-0301-15		086589	INTL PROG MGMT SPEC
BELGIUM	1	GM-0301-15		084002	INTL LIAISON REPRES
BELGIUM	4	AD-0301-00		035812	ADMIN CLERK
BELGIUM	1	GS-0318-08		032710	SECRETARY (TYPING)
BELGIUM	4	AD-0322-00		035364	CLERK-TYPIST
BELGIUM	1	ES-0340-00		101800	DIRECTOR EAMEO
BELGIUM	1	GM-0340-15		086589	DEPUTY DIR EAMEO
BELGIUM	K	GS-0341-11		033623	ADMINISTRATIVE OFCR
BELGIUM	1	GM-0861-15		085115	SUPV AEROSPACE ENGR
BELGIUM	1	GM-0861-14		069532	AEROSPACE ENGINEER
BELGIUM	K	GM-0861-14		056627	AEROSPACE ENGINEER
BELGIUM	1	GM-0861-14		064179	AEROSPACE ENGINEER
BELGIUM	1	GM-0861-14		070790	AEROSPACE ENGINEER
BELGIUM	1	GM-0861-14		066067	AEROSPACE ENGINEER
BELGIUM	1	GS-1825-14		062291	ASI AW
BELGIUM	C	GS-1825-14		066067	ASI OPS
BELGIUM	1	GM-1825-15		082521	MANAGER, SAFETY INSP
BELGIUM	1	GM-1825-15		080699	AVN SAFETY INSP MFG
BELGIUM	1	GS-2152-14		071731	ATC SPECIALIST
BELGIUM	1	GM-2152-15		086589	SUPV ATC SPECIALIST
BELGIUM	1	GM-2181-14		073619	FLIGHT TEST PILOT
BELGIUM	2	GS-0303-07		024988	STAFF ASSISTANT
BELGIUM	K	GS-1801-13		057502	AVN SECURITY SPEC
BELGIUM	1	GS-1801-13		052711	AVN SEC LIAISON OFCR
BELGIUM	K	GS-1801-13		054308	AVN SECURITY SPEC
BELGIUM	C	GS-1801-13		051114	AVN SECURITY SPEC
BELGIUM	K	GS-1801-13		049517	AVN SECURITY SPEC
BELGIUM	1	GS-1801-14		060403	CIVIL AVN SEC SPEC
BELGIUM	K	GS-1801-13		047920	AVN SECURITY SPEC
BELGIUM	K	GS-1801-13		057502	AVN SECURITY SPEC
BELGIUM	K	GS-1801-13		047920	AVN SECURITY SPEC
BELGIUM	1	GM-1801-15		086589	SUPV CIV AVN SEC SP
BELGIUM	1	GM-1801-15		075490	SUPV CIV AVN SEC SP
BELGIUM	1	GM-1801-14		063235	SUPV AVN SEC SPEC
BELGIUM	1	GM-1801-15		086589	SUPV AVN SECURITY SP
BELGIUM	K	GM-1801-14		062291	CAS LIAISON OFFICER
BAHAMAS	1	WG-4749-10		021684	MAINT MECH
BRAZIL	1	GM-0301-15		086589	FAA REPRESENTATIVE
FRANCE	1	GM-0301-15		086589	FAA REPRESENTATIVE
FRANCE	1	GM-1801-14		073619	CAS LIAISON OFFICER
WEST GERMANY	K	GM-0301-13		053510	A/C AVN MNT OFF
WEST GERMANY	K	GS-0318-06		021124	SECY (O/A)
WEST GERMANY	1	GM-0340-15		075490	MGR INT FLT INS OFF
WEST GERMANY	1	GS-0341-11		043712	ADMIN OFF
WEST GERMANY	K	GS-0341-09		027789	ADMIN OFFICER
WEST GERMANY	1	GS-0856-12		045670	L ELEC TECH
WEST GERMANY	K	GS-0856-11		036986	ELEC TECH
WEST GERMANY	1	GS-0856-11		040349	ELEC TECH

WEST GERMANY	1	GS-0856-12	047013	ELEC TECH
WEST GERMANY	K	GS-0856-11	036986	ELEC TECH
WEST GERMANY	1	GS-0856-12	047013	ELEC TECH
WEST GERMANY	1	GS-0856-11	043712	ELEC TECH
WEST GERMANY	K	GS-1825-14	062291	ASI OPS
WEST GERMANY	1	GS-1825-14	062291	ASI AW
WEST GERMANY	K	GS-1825-14	060403	ASI AW
WEST GERMANY	K	GS-1825-14	056627	ASI AW
WEST GERMANY	1	GS-1825-14	062291	ASI AW
WEST GERMANY	1	GS-1825-14	064179	ASI AW
WEST GERMANY	1	GS-1825-14	069843	ASI AVIONICS
WEST GERMANY	K	GS-1825-14	060403	ASI AW
WEST GERMANY	K	GS-1825-14	060403	ASI AW
WEST GERMANY	K	GS-1825-14	058515	ASI AW
WEST GERMANY	K	GS-1825-14	058515	ASI AW
WEST GERMANY	1	GS-1825-14	062291	ASI AVIONICS
WEST GERMANY	K	GS-1825-14	062291	ASI OPS
WEST GERMANY	1	GS-1825-14	069843	ASI OPS
WEST GERMANY	K	GS-1825-14	058515	ASI AW
WEST GERMANY	1	GS-1825-14	062291	ASI AW
WEST GERMANY	K	GS-1825-14	056627	ASI AW
WEST GERMANY	1	GS-1825-14	066067	ASI AW
WEST GERMANY	1	GM-1825-15	077712	SUPV ASI OPS
WEST GERMANY	1	GM-1825-15	073269	SUPV ASI AW
WEST GERMANY	1	GM-1825-15	086589	MANAGER, SASI
WEST GERMANY	1	GS-1910-11	041470	QL ASR SP AERO
WEST GERMANY	K	GS-2001-11	033623	GEN SUPPLY SPEC
WEST GERMANY	1	GS-2181-13	057502	ASIP
WEST GERMANY	1	GM-2181-14	070791	ASIP
WEST GERMANY	1	GM-2181-14	067011	ASIP
WEST GERMANY	1	GM-2181-14	060403	ASIP
WEST GERMANY	1	GM-2181-14	062291	ASIP
WEST GERMANY	1	GS-1801-13	049517	AVN SECURITY SPEC
WEST GERMANY	K	GM-1801-14	058515	CAS LIAISON OFFICER
ITALY	1	GM-0301-15	080673	FAA REPRESENTATIVE
ITALY	4	AD-0341-00	050599	ADMIN ASSISTANT
ITALY	1	GS-1801-13	060696	AVN SECURITY SPEC
ITALY	K	GS-1801-13	047920	AVN SECURITY SPEC
ITALY	K	GM-1801-14	058515	CAS LIAISON OFFICER
ITALY	K	GM-1801-14	060403	SUPV AVN SEC SPEC
JAPAN	K	GS-0301-12	041641	A/C AVN MNT OFF
JAPAN	1	GM-0301-15	082156	FAA REPRESENTATIVE
JAPAN	1	GS-0341-11	043712	ADMIN OFF
JAPAN	1	GS-0856-12	044327	ELEC TECH
JAPAN	1	GS-0856-11	042591	ELEC TECH
JAPAN	K	GM-0856-13	051114	S ELEC TECH
JAPAN	1	GS-2181-13	062293	ASIP
JAPAN	1	GS-2181-15	071049	S ASIP
JAPAN	K	GM-2181-14	058515	ASIP
JAPAN	1	GM-2181-14	063235	ASIP
JAPAN	K	GM-2181-14	058515	ASIP
JAPAN	K	GM-1801-14	058515	CAS LIAISON OFFICER
SINGAPORE	K	GS-0301-15	073269	FAA REPRESENTATIVE
SINGAPORE	1	ES-0340-00	107300	DIRECTOR, APC
SINGAPORE	1	GS-1825-14	073619	AV SAF INSP (AW) IFO
SINGAPORE	1	GS-1825-14	064179	AV SAF INSP (AW) IFO
SINGAPORE	1	GS-1825-14	073619	AV SAF INSP (OPS) IFO

SINGAPORE	K	GS-1825-14	062291	AV SAF INSP (AW) IFO
SINGAPORE	1	GS-1825-14	064179	AV SAF INSP (AV) IFO
SINGAPORE	K	GS-1825-14	062291	AV SAF INSP (OPS) IFO
SINGAPORE	1	GM-1825-15	078819	SUPV AV SAF INSP IFO
SINGAPORE	K	GS-1801-13	047920	CIV AV SEC SPEC
SINGAPORE	1	GM-1801-14	073619	CAS LIAISON OFFICER
SPAIN	1	FC-0340-13	085934	PROGRAM MANAGER
SPAIN	1	FC-0810-12	075489	CIVIL ENGINEER
SPAIN	1	FC-0855-12	077709	ELECTRONICS ENGINEER
SPAIN	1	FC-0855-12	075489	ELECTRONICS ENGINEER
SPAIN	1	FC-2152-12	079929	ATC SPECIALIST
SPAIN	K	GM-1801-14	058515	CAS LIAISON OFFICER
THAILAND	K	GM-1801-14	060403	CAS LIAISON OFFICER
UNITED KINGDOM	K	GM-0301-15	085110	FAA REPRESENTATIVE
UNITED KINGDOM	C	GS-0318-07	025745	SECRETARY
UNITED KINGDOM	K	GS-1825-14	056627	ASI AVIONICS
UNITED KINGDOM	K	GS-1825-14	056627	ASI AW
UNITED KINGDOM	K	GS-1825-14	056627	ASI AW
UNITED KINGDOM	1	GS-1825-14	064179	ASI OPS
UNITED KINGDOM	K	GS-1825-14	058515	ASI AW
UNITED KINGDOM	K	GS-1825-14	064179	ASI AW
UNITED KINGDOM	K	GS-1825-14	058515	ASI AW
UNITED KINGDOM	K	GS-1825-14	064179	ASI AW
UNITED KINGDOM	1	GM-1825-15	071049	SUPV ASI AW
UNITED KINGDOM	1	GM-1825-15	078822	SUPV ASI
UNITED KINGDOM	C	GM-1801-14	065125	CAS LIAISON OFFICER
VENEZUELA	1	GM-1801-14	060403	CAS LIAISON OFFICER
SAUDI ARABIA	1	FC-1825-12	073269	AVN SAFETY INSPECTOR
SENEGAL	4	AD-0301-00	000000	FSN
SENEGAL	1	GM-0301-15	078822	FAA REPRESENTATIVE
SENEGAL	K	GS-1801-13	052711	CIVIL AVN SEC INSP
DENMARK	K	GM-1801-14	058515	CAS LIAISON OFFICER
AUSTRIA	1	GS-1801-13	051114	CIVIL AVN SEC SPEC
AUSTRIA	C	GS-1801-14	058515	AVN SEC LIAISON OFCR
BAHRAIN	1	GS-1801-13	052711	CIVIL AVN SEC SPEC
BAHRAIN	K	GS-1801-13	049517	CIVIL AVN SEC SPEC
BAHRAIN	K	GM-1801-15	068829	SUPV AVN SECURITY SP
BAHRAIN	K	GM-1801-14	060403	CAS LIAISON OFFICER
INDONESIA	1	FC-0301-12	084369	SR AVIATION ADVISOR
AUSTRALIA	K	GM-1801-14	063235	CAS LIAISON OFFICER
RUSSIA	1	GM-0301-15	074379	FAA REPRESENTATIVE
CHINA	1	GS-0301-15	086589	FAA REPRESENTATIVE

TOTAL = 152 .

UNIVERSITY CONTROLLER TRAINING PROGRAM

Mr. CARR. Please update the data on the demographic and racial profile of controllers recruited through your university-based training programs as shown on page 660 of last year's hearing record. [The information follows:]

University Controller Training Program

MARC:

Employed to date	163
White Females	64
White Males	78
Native American Males	1
Black Females	2
Black Males	7
Hispanic Females	1
Hispanic Males	3
Asian American Females	2
Asian American Males	5

Community College of Beaver County:

Employed to date	33
White Females	7
White Males	26

Hampton University:

Employed to date	1
Black Female	1

WORKERS' COMPENSATION PROGRAM

Mr. CARR. Please update the table on your workers' compensation program as shown on page 661 of last year's hearing record. [The information follows:]

WORKERS' COMPENSATION PROGRAM

Fiscal year	\$000 cost	\$000 change	Percent change	Cases	Case change	Percent change
1993	77,193	(756)	0	3,398	13	0
1992	77,949	6,201	8.8	3,385	120	3.7
1991	71,748	1,648	(2.2)	3,265	72	2
1990	73,395	8,398	12.9	3,193	14	0
1989	64,998	1,017	2	3,179	7	0
1988	63,980	2,615	4	3,172	(161)	(5)
1987	61,365	(3,788)	(6)	3,333	(117)	(3)
1986	65,153	599	1	3,450	(21)	(1)
1985	64,554	5,241	9	3,471	13	0

PERCENT INCREASE/DECREASE IN COSTS

	DOT	Governmentwide
Medical	1.1	9.2
Compensation	0.02	4.2
Death benefits	2.8	3.4
Total costs	0.3	5.4

HEADQUARTERS ADMINISTRATION—FINANCIAL AND STAFFING
RESOURCES

Mr. CARR. Please update the breakdown of financial and staffing resources for the “headquarters administration” budget activity, as shown on page 662 of last year’s hearing record, by providing data for fiscal years 1993–1995.

[The information follows:]

HEADQUARTERS ADMINISTRATION

	Authorized Positions			Financial Resources (\$000)		
	ACTUAL FY 1993	EST FY 1994	EST FY 1995	ACTUAL FY 1993	EST FY 1994	EST FY 1995
HEADQUARTERS ADMINISTRATION						
Administrator	54	51	48	4,822	4,623	4,474
Assistant Administrator for Civil Rights	16	15	14	1,382	1,377	1,333
Assistant Administrator for Public Affairs	37	35	33	2,423	2,317	2,242
Assistant Administrator for Government & Industry Affairs	14	13	12	738	753	729
Assistant Administrator for Information Technology	55	52	49	5,195	4,258	4,121
Assistant Administrator for Policy, Planning, and International Aviation	152	145	139	10,272	10,297	9,965
Assistant Administrator for Budget and Accounting	7	7	7	887	953	922
Office of Budget	61	58	55	4,174	4,018	3,888
Office of Accounting	45	42	40	2,868	2,938	2,843
Executive Director for System Operations	9	8	8	1,256	1,211	1,172
Executive Director for System Development	15	14	13	910	1,103	1,067
Executive Director for Acquisition and Safety Oversight	38	35	33	2,971	2,991	2,894
ADMIN SUB-TOTAL	503	475	451	37,898	36,839	35,650
Associate Administrator for Aviation Safety	71	71	68	12,791	11,394	11,302
TOTAL	574	546	519	50,689	48,233	46,952

POLICY STUDIES

Mr. CARR. Please list the policy studies you plan to complete during calendar year 1994 and those you actually completed during 1993, similar in format to the information shown on pages 663-664 of last year's hearing record.

[The information follows:]

During calendar year 1994, the Office of Aviation Policy, Plans, and Management Analysis anticipates completing the following policy studies:

New establishment and discontinuance criteria for airport surface detection equipment.

New establishment and discontinuance criteria for precision runway monitor equipment.

Comprehensive study of the High Density Rule.

Examination of direct user fees for international overflights of airspace provided air traffic control service by the United States.

Draft guidance on what constitutes fair, reasonable and not unjustly discriminatory airport rates and charges.

Evaluation of airport noise restrictions submitted to the FAA under Part 161 of the Federal Aviation Regulations.

An update of critical economic values used in benefit/cost analyses of FAA system and regulatory actions.

An update of appropriate benefit-cost procedures for use in conducting economic analyses of FAA systems and regulatory actions.

Updating of Civil Aviation Security Staffing Standards.

Initiation of a top level review of the agency's staffing standards program.

Economic evaluation of approximately 104 rulemaking actions will be completed during CY 1994, dealing with such diverse areas as aircraft manufacturing and maintenance, aircraft operation, airspace allocation, security, airmen's standards, and prevention of mid-air collisions. Included will be analyses of proposed and final rules pertaining to alcohol testing of persons performing safety-sensitive functions, anti-drug programs, airport and aircraft security, aircraft noise, aircraft cabin safety, aging aircraft, and harmonization of U.S. and foreign airworthiness standards.

Develop annual projection of delay for 2003 and a listing of airports with more than 20,000 hours of delay.

Develop the cost of delay for 1993.

During the 3 month period ending March 31, 1994, the following policy studies were completed:

Staffing standards for Aviation Safety Inspectors.

New establishment and discontinuance criteria for Loran-C approaches.

An economic evaluation of the appropriateness of charging user fees for FAA training provided to designated medical examiners.

Economic evaluations of 16 of the 104 rulemaking actions discussed above.

GENERAL COUNSEL'S LETTER ON FAA BUDGET REQUEST

Mr. CARR. Please provide a copy of the General Counsel's letter to the House Committee on Appropriations dated July 8, 1993, which describes FAA internal budget requests for fiscal year 1994, submitted to Congress pursuant to section 506(f) of the Airport and Airway Improvement Act.

[The information follows:]



U.S. Department of
Transportation

General Counsel

July 8, 1993

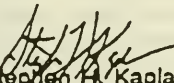
The Honorable William H. Natcher
Chairman, Committee on Appropriations
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

On behalf of the Federal Aviation Administration and pursuant to subsection 506(f) of the Airport and Airway Improvement Act of 1982 (49 U.S.C. 2205(f)), I am enclosing copies of the FY 1994 budget requests of the Federal Aviation Administration to the Department, including requests for "Facilities and Equipment" and "Research, Engineering, and Development". These materials also contain the submission of the Department to the Office of Management and Budget for the same accounts.

These materials led to final recommendations upon completion of the annual budget process and submission of the FY 1994 budget to Congress by the President.

Sincerely,


Stephen H. Kaplan
General Counsel

Enclosure

OST SUBMISSION

 DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 RESOURCE SUMMARY - FINANCING
 (\$ in thousands)

APPROPRIATION TITLE (All Trust Funds except as noted)	BUDGET AUTHORITY			
	FY 1992 ESTIMATE	FY 1993 REQUEST	FY 1994 TARGET	FY 1994 REQUEST
Operations	\$4,360,000	\$4,606,000	\$4,606,000	\$5,299,000
(Federal)	2,250,400	1,415,400	1,415,400	1,565,400
(Trust Fund Share)	2,109,600	3,190,600	3,190,600	3,733,600
Aviation Insurance Revolving Fund	(3,600)	(3,600)	(3,600)	(3,600)
Aircraft Purchase Loan Guarantee Prog	210	150	150	150
Grants-in-Aid Airports (Trust)				
(Contract Authority)	1,900,000	1,900,000	1,900,000	1,900,000
Facilities and Equipment (Trust)	2,394,000	2,700,000	2,700,000	2,916,000
Research, Engineering and Development (Trust)	<u>218,135</u>	<u>230,000</u>	<u>230,000</u>	<u>321,000</u>
TOTAL BUDGET AUTHORITY	\$8,868,745	\$9,432,550	\$9,432,550	\$10,432,550
(Federal)	2,250,400	1,415,400	1,415,400	1,565,400
(Trust)	6,621,735	8,020,600	8,020,600	8,867,150
LIQUIDATING CASH APPROPRIATIONS:				
Grants-in-Aid for Airports	\$1,520,000	\$1,740,000	\$1,740,000	\$1,740,000
Proprietary Receipts				
Miscellaneous Recoveries & Refunds	\$1,028	\$1,028	\$1,028	\$1,028

OMB SUBMISSION

DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 RESOURCE SUMMARY - FINANCING
 (\$ in thousands)

<u>APPROPRIATION TITLE</u>	<u>FY 1992 ENACTED</u>	<u>BUDGET AUTHORITY FY 1993 REQUEST</u>	<u>FY 1994 REQUEST</u>
Operations	\$4,360,000	\$4,606,000	\$5,048,300
(Federal)	2,250,375	1,415,400	1,496,265
(Trust)	2,109,625	3,190,600	3,552,035
Aviation Insurance Revolving Fund	0	0	0
Aircraft Purchase Loan Guarantee Prog.	210	150	150
Grants-in-Aid Airports (Trust) 1/ (Contract Authority)	1,900,000	1,900,000	1,900,000
Facilities and Equipment (Trust) 1/	2,394,000	2,700,000	2,729,800
Research, Engineering and Development (Trust)	<u>218,135</u>	<u>230,000</u>	<u>297,000</u>
 TOTAL BUDGET AUTHORITY	 \$8,872,345	 \$9,436,150	 \$9,975,250
(Federal)	2,250,585	1,415,550	1,496,415
(Trust)	6,621,760	8,020,600	8,478,835
 LIQUIDATING CASH APPROPRIATIONS:			
Grants-in-Aid for Airports	\$1,520,000	\$1,800,000	\$1,900,000
 Propriety Receipts			
Miscellaneous Recoveries & Refunds	\$1,028	\$1,028	\$1,028

1/ Excludes impact of FY 1992 Supplemental for Grants-in-Aid for Airports and Facilities and Equipment.

Mr. CARR. Please provide similar information for fiscal year 1995.

[The information follows:]

The information requested for fiscal year 1995 is currently being prepared for the signature of the General Counsel and will be provided to the Committee shortly.

CONTROLLER ROTATIONAL SHIFTS

Mr. CARR. Has the FAA conducted any studies on the most effective shift rotation for FAA's air traffic controllers from a human factors standpoint, and if so, how do the results of those studies compare to FAA's current rotation practices?

[The information follows:]

There is considerable variation in shift scheduling practices at all air traffic facilities. These schedules are negotiated at the local level. The most popular schedule with the employees is the 2-2-1 schedule (2 evenings, 2 days, 1 midnight). Anecdotal comments from controllers and facility managers suggest that the percentage of younger controllers preferring the 2-2-1 schedule is somewhat greater than of older controllers. Continued research will be needed to determine the extent to which older controllers experience difficulties in coping with the 2-2-1 schedule and to assess the effectiveness of alternative schedules and fatigue countermeasures that would reduce the potential negative consequences of working a rotating shift schedule.

This schedule has been used in Air Traffic for over 20 years and there has not been any indication that it has had any negative impact on the safety of the system.

NTSB ON ATC ROTATIONAL PRACTICES

Mr. CARR. Has the Safety Board ever commented on FAA's rotation practices for ATC personnel?

[The information follows:]

There has been only one safety recommendation from the National Transportation Safety Board (NTSB) to the Federal Aviation Administration concerning rotation practices of air traffic controllers. This recommendation was site-specific to the Salt Lake City, Utah, ATC facility subsequent to a non-fatal accident involving a Gates Learjet on December 3, 1969.

PROCESS FOR SITE SELECTION OF NEW EQUIPMENT

Mr. CARR. What process does the FAA utilize when deciding where to site new radars, communications systems, and other equipment funded under F&E? For example, is a formal air traffic benefit cost study conducted on a site-by-site basis? Are comparative studies conducted to weigh various alternatives?

[The information follows:]

FAA makes investments in the National Airspace System in order to best serve the needs of the flying public. All aspects of investment decision making—project selection, sizing, location, etc.—involve careful analysis including benefit-cost evaluation. For example, in formulating plans to consolidate air traffic control facilities nationwide, the FAA has undertaken a comprehensive study of alternative scenarios to determine the best sites and level of consolidated consistent with maintaining high quality service.

For certain facilities and equipment (F&E) investments, the FAA has relied on rigorous benefit-cost-based establishment criteria since the early 1970's. Examples include air traffic control towers, airport surveillance radars, and precision approach landing systems. The benefit and cost estimates produced when applying these criteria are routinely used to compare alternative investment locations. Ultimate siting recommendations are based on technical, operational, and benefit-cost considerations.

CONTRACT TOWERS—LOCATIONS TO CONVERT

Mr. CARR. Please provide a list of the current FAA towers planned for conversion to contract towers in fiscal year 1994 and 1995 and an estimate of the number of FAA employees in each facility.

[The information follows:]

A list of the current FAA towers planned for conversion to contract towers in fiscal year 1994 and an estimate of the number of air traffic employees (GS-2152) in each facility is provided below. The FAA towers to be converted in fiscal year 1995 have not yet been identified.

Name:	Current staffing
1. Salina, KS	6
2. Charlottesville-Albermarle, VA	5
3. Hagerstown, MD	10
4. Alton, St. Louis, IL	8
5. Detroit City, MI	9
6. Cincinnati Lunken, OH	9
7. Groton, CT	7
8. Hartford-Brainard, CT	8
9. New Haven, CT	7
10. Westfield-Barnes, MA	7
11. Lewiston, ID	6
12. Pocatello, ID	7
13. Salem, OR	6
14. Greenville, SC	10
15. Isla Grande, PR	6
16. Meridian, MS	9
17. Panama City, FL	10
18. Tuscaloosa, AL	7
19. Brownsville, TX	9
20. Alexandria/Esler, LA	8
21. Stinson, TX	10
22. Texarkana, AR	10
23. Molokai, HI	7
24. Palmdale, CA	11
25. Salinas, CA	7

NOTE.—Some of these towers may have a part-time or full-time clerical employee. These are not included in the staffing numbers provided. Staffing numbers are as of 1/1/94.

CONTRACT TOWERS NOT MEETING ESTABLISHMENT CRITERIA

Mr. CARR. Please provide a list of FAA contract tower locations that do not currently meet FAA contract tower establishment criteria, and include the benefit-cost ratio for each.

[The information follows:]

The following is a list of FAA Contract Towers that do not meet FAA contract tower establishment/discontinuance criteria. Benefit/Cost data is as of Sept. 30, 1993, except where indicated.

Location	Identifies	B/C ratio
1. Lewisburg, WV	LWB	0.46
2. Cape Girardeau, MO	CGI	0.40
3. Pendleton, OR	PDT	0.54
4. Valdosta, GA	VLD	0.58
5. Hobbs, NM	HOB	0.48
6. Westheimer, OK	OUN	0.66
7. Gary, IN	GYG	0.31
8. Marion, IL	MWA	0.39
9. Martha's Vineyard, MA	MYV	0.97
10. Ardmore, OK	ADM	0.88

Location	Identifies	B/C ratio
11. Athens, GA	AHN	² 0.41

¹ Data as of Jan. 1994.² Data as of Apr. 1994.

LEVEL I TOWERS NOT MEETING CRITERIA

Mr. CARR. Please provide a list of FAA Level I towers that do not currently meet FAA contract tower establishment criteria, and include the benefit-cost ratio for each.

[The information follows:]

The following is a list of FAA Level I tower locations that do not meet FAA Contract Tower establishment/ discontinuance criteria. Benefit/Cost data is as of 12/8/93.

Location	Identifies	B/C ratio
1. Monroe, IN	BMG	0.34
2. Wheeling Ohio Co, WV	HLG	.51
3. Williamsport, PA	IPY	.52
4. Greenville Intl, MS	GLH	.69
5. Joplin, MO	JLN	.78
6. St. Joseph, MO	STJ	.91
7. Grand Island, NE	GRI	.73
8. Columbia, MO	COU	¹ .73
9. Walla Walla, WA	ALW	.70
10. Olympia, WA	OLM	.86
11. Shreveport Dtn., LA	DTN	.86
12. Drake Field, AR	FYV	¹ .88
13. Delaware Co., IN	MIE	.61
14. Twin Falls, ID	TWF	¹ .98
15. Lake Tahoe, CA	TVL	.71
16. Pago Pago, Amer. Samoa	TUT	¹ .2.93

¹ FAA Level I Nonradar Approach Controls—Before nonradar approach control locations can be decommissioned, their instrument flight rules separation responsibilities must be transferred to other FAA facilities. This action will cause the nonradar locations to become Level I Visual Flight Rules towers and be decommissioned.

² Pago Pago is a nonradar approach control facility which provides services to international and national air carriers on American Samoa, a U.S. possession. It should continue as an FAA tower in spite of not meeting criteria.

STAFFING AT LEVEL I TOWERS CONVERTED TO CONTRACT TOWERS

Mr. CARR. Will any controller currently in a Level I tower lose their job when the tower is contracted out?

[The information follows:]

Every controller currently in a level I tower will be offered a job at another FAA air traffic facility. No controller will lose a job because his or her tower is contracted unless it is by personal choice.

TOWER STREAMLINING—IMPACT ON CONTROLLER PAY

Mr. CARR. What percentage of current FAA controllers affected by the tower streamlining program will receive a pay cut as a result of that program? What percentage are likely to receive a pay increase?

[The information follows:]

All FAA controllers currently in Level I towers will be given an opportunity to accept a higher paying position at another FAA air traffic facility when their present towers are contracted. Therefore, 0 percent will be required to receive a pay cut as a result of the program and as many as 100 percent could receive an increase.

This does not preclude the possibility that a few employees may request lateral reassignments for personal reasons, resulting in no change in pay.

GRAND PRAIRIE AIRPORT—CONTRACT TOWER PROGRAM

Mr. CARR. Please provide a copy of the FAA's March 4, 1994, letter to the Director of Grand Prairie, Texas, Municipal Airport regarding their qualification as a candidate for inclusion in FAA's contract tower program.

[The information follows:]

The FAA's March 4, 1994, letter to the director of Grand Prairie (TX) Municipal Airport is as follows.



U.S. Department
of Transportation

800 Independence Ave., S.W.
Washington, D.C. 20591

**Federal Aviation
Administration**

MAR - 4 1994

Mr. R. T. Miller
Airport Director, Grand Prairie
Municipal Airport
3116 South Great Southwest Parkway
Grand Prairie, TX 75051

Dear Mr. Miller:

This letter conveys the current status of Grand Prairie Municipal Airport (F67) as it pertains to qualifying as a candidate for inclusion in the Federal Aviation Administration's (FAA) Contract Tower (FCT) Program.

The FAA uses establishment criteria as the primary means of allocating air navigation facilities and airport traffic control services. The criteria compare the present value of tower benefits with the present value of costs over a 15-year timeframe using activity forecasts to develop estimated benefits. A location meets benefit/cost (B/C) criteria, when in addition to having a control tower structure that meets current building standards, the B/C analysis reflects a ratio where benefits exceed costs (reflected by a B/C ratio of 1.0 or greater).

A B/C analysis utilizing the criteria to establish an FCT operation was applied to F67. The analysis factored in the cost of FCT establishment, as well as associated tower equipment and maintenance. The relevance of these factors was determined by utilizing all available information, as well as the results of an on-site visit paid to the airport by representatives from the FAA's Southwest regional headquarters. Utilizing these factors, the B/C ratio was 0.99.

New information concerning these factors recently emerged. Aviation Management Associates, Incorporated, relayed to the FAA that according to the city of Grand Prairie, the existing control tower structure meets current building standards. The city of Grand Prairie agrees to be responsible for all associated costs for tower equipment and maintenance. Finally, compliance with Occupational Safety and Health Administration, or any other applicable regulatory organizations, for the establishment and operation of the tower as an FCT also remains the responsibility of the city of Grand Prairie or its contractors, and not the FAA.

Taking this new information into consideration, a new B/C analysis was completed on January 12, 1994, and resulted in a B/C ratio of 1.83. The B/C analysis took into account the operation of a contract tower and did not include any factors for FCT establishment, equipment, or maintenance at F67.

Based upon the information submitted to the FAA by Aviation Management Associates, Incorporated, and the subsequent results of the latest FAA B/C analysis completed January 12, 1994, FAA is willing to recommend that F67 be added to its list of qualified candidates eligible for inclusion into the FCT Program. This action will be initiated following the receipt of written confirmation from you which states that the city of Grand Prairie concurs with the information presented to the FAA by Aviation Management Associates, Incorporated, as expressed in this letter and agrees to perform according to said information.

Unfortunately, due to budgetary constraints and the volume of requests by airports to be included in the Program, we are unable to make any further commitment on F67 at this time.

Sincerely,

Original signed by

Rodman D. Bourne
Acting Director, Air Traffic Plans and
Requirements Service

Enclosures

cc: ATR-1/100(2)/120(2), ASW-500
ATR-120.3:JHarris:pah:79176:3/4/94
FILE:
N:\ADMIN\ATR120\JTH\MILLERA.GP

CONTRACTING LEVEL I TOWERS—NATCA LETTER

Mr. CARR. In a letter to the committee, the National Air Traffic Controllers Association, NATCA, says if the FAA carries out its plan to contract out Level I towers, "towers will be staffed by fewer controllers and will operate fewer hours. You can imagine what effect these reduced services will have on businesses that depend on the airport for commercial purposes." Would you comment?

[The information follows:]

FAA Contract Towers (FCT) will be staffed according to the demands of the air traffic activity at each tower location. One of the primary advantages of the FCT Program is that contractors do not have to staff for the administrative and collateral functions required at FAA facilities and can adjust staffing to meet seasonal air traffic demands.

There should be no reduction in the hours of operation when an FAA Level I tower is converted to contract operation. Hours of operation at FAA staffed towers and FCT's are determined by the needs of that particular location in accordance with FAA regulations. FAA routinely evaluates both FAA staffed towers and FCT's to ensure their operating hours continue to satisfy operational needs and meet FAA standards.

CONTRACTING LEVEL I TOWERS—EXPECTED SAVINGS

Mr. CARR. Where specifically do you expect the savings to come from as a result of contracting out, particularly if controller pay is not reduced?

[The information follows:]

The FAA Contract Tower program will provide significant cost savings in three areas: Lower tower operating costs, reduced hiring/training requirements, and avoidance of permanent change of station costs.

Contract towers are less expensive to operate due to flexibilities and efficiencies available to contractors which are not available to the FAA. For example, contractors do not have to staff for the collateral functions required at FAA facilities, they have lower overhead and administrative costs, and unlike FAA, they have the ability to adjust staffing to meet seasonal air traffic demands.

Additional savings from the program will be realized through reduced hiring and training requirements. Under the current workforce alignment, approximately 1,000 employees occupy positions in FAA Level I towers. As these towers are contracted, and the employees relocate to higher level facilities, the FAA will be relieved of the requirement to hire and train replacements.

After up-front conversion costs are fully paid through employee attrition, the agency will save an average of \$200,000 at each facility converted to contract operation.

DISTANCE LEARNING

Mr. CARR. FAA has recently distributed 10 technical training courses on CD-ROM to FAA sites around the country, in order to lower travel costs for training. What is the FAA's overall plan for greater use of automation technology for training?

[The information follows:]

FAA began expanded development of Computer Based Instruction (CBI) in FY 1989 by agency-wide distribution of current technology CBI terminals (currently about 1,000). Previously, an older technology Plato network was used (from at least 1985). Using current multimedia technology, approximately 97 new CBI courses were developed through FY 1993; 15 more are now in production stages and more are planned.

FAA is studying the application of satellite technology to deliver a portion of its technical training. Studies include a market survey, cost benefit analysis, and a myriad of other types of planning associated with acquisition. Teletraining technologies appear to offer cost effective alternatives to the conventional way of conducting training. In keeping with the National Performance Review recommendation there is a way to "make it work better, and cost less," we are obligated to

do it. However, we do not expect to have travel cost savings until full implementation of the Interactive Video Teletraining or Computer Based Instruction system.

Mr. CARR. What savings do you anticipate from this, and are any savings reflected in your fiscal year 1995 budget request?

[The information follows:]

No savings are reflected in the fiscal year 1995 budget request because the Capital Investment Program (Project 56-02—Distance Learning) is planned for fiscal year 1996. The Cost Benefit Analysis for the Distance Learning Program estimates that, over the ten-year life cycle of the project, the over-all costs (in constant 1994 dollars) will total \$85.2 million, while the expected benefits over the same period will total \$197.5 million.

BLUE RIBBON PANEL REPORT ON PILOTS AND MAINTENANCE
TECHNICIANS

Mr. CARR. In August 1993, the FAA issued a report titled "Pilots and Aviation Maintenance Technicians for the Twenty First Century: An Assessment of Availability and Quality." Please provide for the record a copy of the executive summary of that report.

[The information follows:]

A copy of the requested executive summary follows:

EXECUTIVE SUMMARY

History

The air transportation industry in the United States has always been considered the world's leader. It continues to have a profound impact on the U.S. economy, particularly as a source for job generation. The industry is a diverse one that embraces scheduled and non-scheduled airlines, regional carriers (commonly referred to as "commuter airlines"), and commercial, on-demand air carriers (commonly referred to as "air taxis") provided by the general aviation sector. In addition to providing services to the traveling public, the industry employs more than one-half of a million pilots, mechanics, reservation clerks, and other specialists. It is also closely linked to the nation's economic cycles, and, over the past 6 decades, its labor demands have continually shifted from critical shortage to excess supply. In spite of the current economic recession, a deregulated industry, and rapidly increasing international competition, there are approximately 6,200 aircraft in the U.S. airline fleet, and an additional 57,000 aircraft that are commercially operated by the other sectors of the air transportation industry. Although technological advances have reduced the size of the average airline flight deck crew to less than three, the overall fleet requires more than 135,000 professional pilots and 143,000 aviation maintenance technicians (AMTs).

Traditionally, many of these pilots and AMTs have received their initial training from the military. Data from the Federal Aviation Administration's (FAA) annual forecast, aviation career counseling organizations, manufacturers' projections of aircraft orders, and other sources indicate that the labor needs of the industry will increase by 18.5 percent during the next decade.

Current Assessment

There is no current numerical shortage of pilots or AMTs and it is apparent that there will not be a numerical shortage for the next few years. There is, however, an impending shortage of pilots and AMTs who meet the qualifications necessary to operate in the complex aerospace system of the future. Forecasts of revenue passenger miles (RPMs) point to a steadily increasing demand for pilots and AMTs. In fact, the reduction of the current oversupply, coupled with the

resumption of capacity expansion, indicates that if history is allowed to repeat itself, there is a high probability that there will also be another numerical shortage after 1995. The new face on the problem will be to fill the dearth of qualified applicants, without depending on the usual quantities of well trained military candidates. Though the situation is not critical today, it can become so without attention, planning, action, and intervention. The work of the Blue Ribbon Panel (BRP), set forth in this report, provides background, conclusions, and recommendations for action that will ensure our continued world leadership in aviation.

Although a 20-year forecast of the industry's labor requirements may not be exact, several elements are uncontestable. The industry is cyclical; from the time the shortage problem was identified in mid-1989 until the time the panel was convened in April of 1992, the situation turned from a pilot and AMT shortage to an oversupply situation. One element of this is the ongoing downsizing of the military and its aviation-related elements. The downsizing is producing a surplus of pilots and AMTs who, with minimal transition training, can fill commercial sector needs over the next few years. However, because their skills will diminish if not used on the job and/or they will find permanent non-aviation employment, the current surplus of qualified candidates will soon decline. In addition, the military is sending fewer candidates through its flight and maintenance programs, a trend that will adversely affect the source of available commercial sector candidates beyond the next 5 years. Other military factors, including an increased pilot service obligation and narrow specialization of maintenance technicians, will also adversely affect the available pool. Further, demographic predictions indicate that fewer young people will be available. Therefore, the industry needs to invest in motivational programs that will encourage young people to choose aviation as a career. The declining number of youths, coupled with continued aviation industry dependence on "state of the art" technology, also requires a concentrated effort in elementary and secondary school systems to improve high school graduates' skills in science, math, English comprehension, and communications. Otherwise, those who wish to fly and maintain this new technology equipment will have difficulty qualifying for even entry-level employment; nor will they be prepared to keep pace with its development.

Pilots

A typical non-military career path requires an individual to obtain, at his/her own expense, a commercial certificate through a collegiate aviation program, a private flying school, or other fixed base operator (FBO) type of training. There are no minimum educational requirements for the commercial certificate, but the FAA requires a minimum of 250 hours of flight time (at a cost of up to \$40,000) and a proficiency examination. Traditionally, the air carriers have required additional experience before a candidate would be hired, but the amount of "additional" experience has depended upon the existing supply and demand.

In the past decade, several exemplary schools have patterned their curricula after the military with the premise that disciplined instruction can produce qualified, mature pilots. However, these "ab initio" programs often lead to frustration because the air carriers and unions (and government) regard flight hours as the predominant factor in assessing experience. This emphasis on flight hours runs counter to proficiency-based programs conducted by a number of foreign carriers who have very successful results, and needs to be reexamined in light of the future demand for pilots. The panel observed that many of the nation's flight training schools are currently operating at reduced capacity and that, with a somewhat bleak outlook for their graduates over the next few years, some of them may close. This would, of course, negatively affect any future ability to expand the pilot supply when the demand dictates.

The Department of Defense (DOD) advised the panel that the 25,000 pilots and 95,000 technicians currently in the military will be reduced by 30 percent during the next 5 years. The military downsizing will adversely affect the air carrier pilot supply, because for some air carriers 80 percent of the pilots are ex-military aviators who have undergone highly selective screening before their military training, are team-oriented, are knowledgeable of technically advanced equipment, have gained 6 to 8 years of experience in mission-focused flying activities, and — most importantly — require little extra investment. Considering the current surplus, it is difficult for the air carriers to recognize an

emerging pilot shortage, especially in light of the current profitability problems facing many carriers.

The panel concluded that there are, and will continue to be, plenty of pilots who meet the FAA minimum requirements for a commercial rating. The more pertinent issue is the question of quality and the need to update the minimum training standards to ensure knowledge of computers, human factors, aeromedical issues, etc., in light of increasingly sophisticated equipment. Under current standards, a civil school graduate with 250 to 300 hours of flight time and a commercial certificate, multi-engine rating, and instrument rating has difficulty becoming employed by an air carrier until he/she has accumulated about 2,000 hours of flight time with perhaps 500 of those hours in multi-engine aircraft. Even with adequate flying hours, civil school graduates suffer an experience gap when competing for entry-level air carrier flightcrew jobs against pilots trained in the military. This "gap" is discouraging to the individual, probably unnecessary, and a waste of talent (an appropriate transition training program could eliminate this gap). Another negative factor is the expense of the training because very few loan programs exist. Lack of funding probably drives away many talented, would-be pilots who cannot meet the financial requirements of the training.

AMTs

Although the military has never been the primary source of AMTs for civil aviation, the future number of adequately trained technicians is likely to be insufficient to meet the air transportation industry's increasing demand. Military AMTs usually have expertise in highly specialized, narrow fields, which requires them to obtain additional training in the civilian training environment before they can meet the broad-based experience and certification requirements expected of a civilian AMT.

The majority of new-hire AMTs come from FAA-certificated AMT schools, where they have received 15 to 18 months of structured training in a variety of technical subjects. Although the FAA recently revised the curriculum requirements for these schools, the new curriculum remains broad-based to fit a

variety of technical disciplines, and it may not give AMTs the skills and competencies needed to maintain the increasingly sophisticated transport category aircraft. Therefore, new-hire AMTs working on newer aircraft will have to master skills that many AMT schools do not offer, if they are to become productive members of air transportation teams.

Thus, the industry will face a problem with AMTs similar to the problem with pilots: A decreasing supply of qualified AMTs, combined with increasing skill and experience requirements, will yield a deficit not in the number of minimally qualified individuals but in the number with the necessary skills and experience. This gap will have to be bridged by additional focused and specialized training. Europe and Asia are effectively addressing the future skills shortages and becoming stronger competitors, causing dramatic increases in the amount of U.S. work done in foreign repair stations.

Although a few of the more than 200 AMT schools have correctly read the job market and have begun offering a curriculum that includes electronics, avionics, modern turbine engines, and composites, most schools have not. The schools' efforts to offer up-to-date training are hindered by the challenge of learning the rapidly changing requirements of potential employers. Purchasing the high-technology equipment and funding the training that instructors need to prepare students for the job market is an even greater challenge. AMT schools must work closely with potential employers — air carriers, repair stations, fixed base operators — in order to stay abreast of the industry's latest technology and maintenance requirements. Also, our Federal Aviation Regulations must be consistently monitored and updated, keeping pace with rapid advances in the industry. If this occurs, the schools will be able to make the necessary investments to develop training and skills guidelines that supplement the regulations and help their students gain the skills and competencies that serve their potential employers' needs.

A potentially more damaging and difficult problem AMT schools must face is that many of their students come to the schools poorly prepared to learn the technical subjects that AMTs must master. Many students' basic reading, writing, and mathematical skills are so deficient that they must undergo remedial training before beginning their aviation coursework. In several of the countries

that compete with the U.S. aviation maintenance market, these problems do not exist. Just the opposite is true; they have special technical secondary schools, technical education programs, and apprenticeships that have prevented the problem from occurring.

Currently, the average annual number of new-hire AMTs for the airline sector is approximately 12,000, while the need in general aviation for new-hire AMTs will remain negligible until about 1997. By 2004, the average annual number of new-hire AMTs for the airlines will increase to approximately 16,000 (a 33 percent increase), and 3,000 to 5,000 (for an increase in the 10 to 17 percent range) for general aviation. The current system may be inadequate to accommodate the future demand for the quantity and quality of technicians.

Minorities and women, a growing force in the U.S. population, are currently under-represented in aviation occupations and should be encouraged to seek aviation careers to correct any inherent imbalance and also to compensate for the inevitable shortage of 18- to 24-year-olds in the workforce that will occur because of the 1970s "baby bust."

Aviation training is often lengthy and expensive. Although some financial assistance is available to AMT trainees, the assistance is often inadequate to fully train candidates. Scholarships, grants, and low-cost loans must be increased if motivated, talented individuals are to be available for aviation occupations.

Finally, aviation occupations other than pilots and flight attendants receive little publicity. The AMT occupation is not well known within the secondary school system and, therefore, is seldom regarded as a desirable career. Very few efforts to improve this situation were observed by or reported to the panel. In addition, even with pilot careers, school guidance systems often do not reach students early enough in their academic life to properly prepare them for the job. Without a significant improvement in these efforts, aviation will not get the best and brightest AMT candidates.

Conclusions

It has been said by some that the efforts of this Panel are moot; there is no shortage. Others have stated that since the Panel was convened by the previous Administration, the report will receive minimal attention, if any. The hard work and dedication of this panel should not be without purpose. Because there is no current crisis, the facts in this report simply cannot be ignored and must be taken seriously. This conclusion is basic: The issues presented in this report must not be allowed to become critical. Planning for and taking appropriate action to prevent future shortages must start immediately.

There will be a national shortage of *fully qualified* pilots and AMTs for the period of 1995 through 2010 unless positive action is taken on the recommendations put forth by this Blue Ribbon Panel. Such action has obvious benefits to the United States through the preservation and creation of jobs, and the protection of the leadership position now held in world competition for commercial aviation business. The Panel's findings are derived both from research and information presented during formal briefings. These conclusions and recommendations clearly establish a basis for constructive change, with the assumption that action is taken by government and industry without delay.

In the near term (3 to 5 years), the existing pool of experienced pilots and AMTs may be adequate to supply the needs of the air transportation industry. In the long term, there will continue to be adequate *numbers* of pilots and AMTs meeting minimum qualifications for their jobs in air transportation, but it is unlikely that enough of these pilots and AMTs will have the proper *skills and experience* to provide industry with sufficient numbers of *well qualified* personnel.

The fundamental solution to this anticipated shortage is to focus education and training programs on meeting the demands of the various segments of the air transportation industry. The key to achieving this solution is to create an industry, school, and government coalition that will define needs, develop standards, and create oversight, thus providing the industry with the best trained and safest aviation personnel in the world.

If the United States is to retain its position as the world's leader in the field of aviation, and maintain the associated economic strength that goes with it, then the Congress must pass without delay appropriate tort reform legislation. Further delay of this action may well disrupt the foundation and structure of the light aircraft and general aviation industry to an extent from which it may take many years to recover.

Recommendations

The panel developed a list of recommendations that it believes will improve the quality of pilots and AMTs and ensure that adequate quantities will be available to meet future demands. Some of the recommendations are general, affecting both groups, and others relate to either pilots or AMTs exclusively. The panel has also suggested appropriate lead action organizations. A summary follows.

The panel is also aware that motivating these organizations to begin planning and to take action will not happen as a result of simply reading this report. The Congress, through appropriate committees, or the Department of Transportation, must provide for oversight to ensure that these recommendations are implemented, and continually reviewed, to prevent the cyclical shortage situation from continuing to plague the air transportation industry. A summary follows:

1. The panel believes strongly that increased cooperation and an exchange of information between the air transportation industry and pilot and AMT training schools is necessary. Therefore, an aviation industry coalition designed to improve and promote partnerships between industry and training institutions should be established. This coalition would provide:
 - Closer cooperation between industry and schools to create a dialogue in which training requirements and career opportunities are relayed to the schools.
 - Opportunities to establish student internships and other work/educational cooperatives.

- Opportunities for industry and the DOD to make state-of-the-art equipment and training aids available to schools, either as surplus or as donations.
- Aviation education programs for elementary and secondary school teachers.
- Publicity to promote a positive image of aviation careers.
- Rewrite the AMT description in the Department of Labor's *Dictionary of Occupational Titles*.
- Aviation orientation efforts for elementary and secondary school students.
- Scholarship, loan, and grant assistance to pilot and AMT candidates.
- Assistance and guidance for minorities, disadvantaged persons, and women to enter the aviation field. This could be accomplished by creating separate aviation career interest sections in affirmative action and minority hiring programs.

Suggested membership to represent pilot interests in this coalition would include the Air Line Pilots Association (ALPA), the Air Transport Association (ATA), Aircraft Owners and Pilots Association (AOPA), the Allied Pilots Association (APA), the DOD, the FAA, the General Aviation Manufacturers Association (GAMA), the National Air Transportation Association (NATA), the Regional Airline Association (RAA), and the University Aviation Association (UAA).

Suggested membership to represent AMT interests in this coalition would include the Aircraft Electronics Association (AEA), the Aeronautical Repair Station Association (ARSA), ATA, the Aviation Technician

Education Council (ATEC), the DOD, the FAA, GAMA, the International Association of Machinists and Aerospace Workers (IAMAW), NATA, the Professional Aviation Maintenance Association (PAMA), RAA, and UAA.

ACTION: FAA

2. Convene a pilot training advisory board consisting of air transportation industry and pilot training school representatives to provide a continuing forum to devise performance-based standards for entry-level air carrier and air taxi pilots. Training organizations could use these standards to prepare pilots for careers in air transportation, and the industry would benefit from enhanced training.

This board would help air transportation "users" and "trainers" communicate their mutual needs. It also would provide an opportunity for interested parties to examine all professional pilot certification and training issues on a continuing basis.

ACTION: FAA

3. Develop a detailed plan to establish a national civilian pilot training program to be implemented at such time as private sector resources are unable to satisfy the demand for well-trained, highly qualified pilots. This program should be operated by a competitively selected contractor or team of contractors and located at a suitable inactive military facility or other site as determined by the Department of Transportation (DOT). The program should:
 - Provide high quality ab initio training and related ground school courses for beginning pilot candidates as well as an air transport pilot transition course for those candidates meeting specified training and experience criteria.
 - Include thorough screening and selection of candidates.

- Provide a test bed for educational and training research.
- Facilitate the entry of qualified women and minorities.
- Provide for adjustment of the influx of students on an annual basis as a means to balance the cyclical variations in demand for high quality transport pilots.

The structure of the program should:

- Require an oversight board of directors representing a consortium of air carriers and education/training institutions.
- Provide for both basic training (i.e, through the commercial pilot certificate and instrument rating) and advanced training (turbojet or turboprop) for transition to air carrier entry.
- Encourage industry-funded, tax-deductible scholarships for qualified applicants.
- Provide low interest loans to students for payback upon employment.

ACTION: DOT

4. The Panel believes strongly that the Congress must enact legislation designed to provide relief from excessive product liability awards, which would allow U.S. manufacturers to resume production of training aircraft at a reasonable cost. This would make the United States more competitive with foreign manufacturers, which are currently a principal source of new general aviation and training aircraft used in the United States.

ACTION: U.S. Congress

5. Examine ways in which pilot training methods can be improved and training costs can be reduced, including:
- Increasing the use of low-cost simulation methods for pilot training to reduce total flight-hour requirements. This should enhance the quality of training and reduce the amount of flight time necessary to obtain pilot certificates and ratings.
 - Fostering the development of U.S.-built, low-cost training aircraft.
 - Investigating the effects of aging on existing training aircraft, with an emphasis on ensuring their continued airworthiness.

ACTION: FAA

6. Because a baccalaureate degree reflects an excellent preparation for the intellectual demands, knowledge, and tasks required of a professional pilot, it should be considered a desirable factor in the pilot screening and selection process for entry-level air carrier pilots.

ACTION: Employers and UAA

7. Ensure that the following regulatory initiatives for AMTs are taken:
- As there is no certification requirement beyond a current Airman's Certificate (A&P) to teach in Part 147 schools, instructional standards and quality are often questioned. Establish qualification, certification, and recurrent training requirements for instructors who teach in FAR Part 147 approved AMT schools.
 - Conduct periodic re-registration of AMTs to provide vital information about U.S.-certificated maintenance personnel and to provide these personnel with safety and training information.

- Support the FAA-developed Advanced Standards Initiative as a means of training AMTs to a higher level of expertise, beyond the AMT of today. This must be done in order to develop advanced AMTs with the skills necessary to maintain our increasingly sophisticated fleet.

ACTION: FAA, DOT

8. Initiate intervention into the public school system, primarily kindergarten to 12th grade, to better prepare all students in basic math, science, and English comprehension. This is essential for AMTs but is also an educational standards issue and must be addressed at the national level.

ACTION: U.S. Congress, Department of Education

9. Motivate industry participation in aviation cooperatives and partnerships. Make "bottom line" tax credits available to private industry for cooperative jobs/education programs and for AMT candidate and instructor training.

ACTION: U.S. Congress

10. Industry cooperation and participation in the regulatory process is essential to providing meaningful, effective, and up-to-date regulations. Information gleaned from the "work a day" world must be a consideration in determining the adequacy of rules. Ensure continued regulatory review of aviation issues that affect the quality of pilots and AMTs by supporting the Aviation Rulemaking Advisory Committee (ARAC) or similar review mechanisms. This support is essential to ensure that training and certification requirements remain up to date.

ACTION: FAA, DOT, U.S. Congress

11. Provide financial assistance to professional pilot and AMT candidates, including:

- Guaranteed loans and scholarships through the FAA Airway Science Program or another designated program.
- Priority consideration for under-represented and minority groups through affirmative action programs.

Schools providing pilot and AMT training to minorities and women should receive Federal incentives and grants to assist with recruitment, tutoring, career placement, and scholarships.

ACTION: FAA

12. Initiate legislative efforts to provide pilot and AMT training schools with priority notification and receipt of available surplus military and Federal property. Although much Federal surplus property is made available, most of it is claimed by state and local government interests before it is made available to the general public. Legislation would allow the schools to receive much-needed state-of-the-art, or at least recent, hardware, software, and training courseware from Federal sources either free or at greatly reduced costs.

ACTION: DOT

13. Industry must have motivation to create partnerships with schools and the candidate delivery system. Incentives, in the form of "bottom line tax credits," will help create a climate where it is to industry's advantage to host internships and cooperative AMT candidate and instructor training.

ACTION: U.S. Congress

VOCATIONAL TECHNICAL TRAINING INSTITUTION GRANTS

Mr. CARR. This report concluded, "the future number of adequately trained technicians is likely to be insufficient to meet the air transportation industry's increasing demand" and that FAA certified AMT schools "may not give AMTs the skills and competencies needed to maintain the increasingly sophisticated transport category aircraft."

Given these statements in the FAA's own study, why did the agency propose rescission of the \$750,000 provided in fiscal year 1994 to improve educational opportunities for AMTs?

[The information follows:]

The rescission was proposed because there are enough trained personnel to meet the need for maintenance technicians and there are numerous private training programs. There is no need to duplicate these private training programs and neither the FAA nor the aviation industry needs additional trained aircraft mechanics. In addition, advanced training of air carrier maintenance technicians is currently paid for by industry. If this type of training is to be handled by vocational technical institutions, private industry should be called up to support it to ensure such an initiative is viable and beneficial.

BLUE RIBBON PANEL REPORT ON PILOTS AND MAINTENANCE
TECHNICIANS

Mr. CARR. What are the major air carriers doing in response to the findings that their recruitment base for pilots and maintenance technicians may be drying up as the defense business downsizes?

[The information follows:]

To our knowledge, the major air carriers have not made any concerted effort to address the report's finding that their recruitment base for pilots and maintenance technicians may be drying up as the defense business downsizes. What little hiring they have done has centered on recruiting and reinstating former pilots and technicians.

EXPANDED EAST COAST PLAN—EMPLOYEES AFFECTED BY PAY FREEZE

Mr. CARR. Please provide a list of the titles of FAA employees who are affected by the pay freeze due to the Expanded East Coast Plan in fiscal year 1993 and 1994.

[The information follows:]

FY 1993

- ♦ Administrator
- ♦ Deputy Administrator
- ♦ Regional Administrator, Eastern Region
- ♦ Chief of Staff
- ♦ Deputy Associate Administrator for Air Traffic
- ♦ Deputy Assistant Administrator for Policy, Planning & International Aviation
- ♦ Chief Counsel
- ♦ Director, Office of Environment and Energy
- ♦ Deputy Director, Office of Environment and Energy
- ♦ Manager, Air Traffic Division, Eastern Region
- ♦ Manager, N.Y. Air Route Traffic Control Center
- ♦ Manager, N.Y. Terminal Radar Approach Control
- ♦ Assistant Manager for Resource Management, N.Y. Terminal Radar Approach Control
- ♦ Acting Manager, System Management Branch, Air Traffic Division, Eastern Region
- ♦ Supervisor, Traffic Management Procedures Section, System Management Branch, Air Traffic Division, Eastern Region
- ♦ Manager, Office of Air Traffic System Management, Environmental Issues Branch
- ♦ Environmental Specialist, Office of Airport Planning and Programming, Community and Environmental Needs Division
- ♦ Environmental Specialist, Office of Environment and Energy, Policy and Regulatory Division
- ♦ Attorney/Advisor (General), Office of the Chief Counsel, Environmental Law Branch

FY 1994

- ♦ Regional Administrator, Eastern Region
- ♦ Chief of Staff
- ♦ Acting Assistant Administrator for Policy, Planning and International Aviation
- ♦ Deputy Associate Administrator for Air Traffic
- ♦ Director, Office of Environment and Energy
- ♦ Deputy Director, Office of Environment and Energy
- ♦ Manager, Air Traffic Division, Eastern Region
- ♦ Acting Manager, System Management Branch, Air Traffic Division, Eastern Region
- ♦ Manager, Office of Air Traffic System Management, Environmental Issues Branch
- ♦ Supervisor, Traffic Management Procedures Section, Air Traffic Division, Eastern Region

NEW JERSEY FINAL EIS

Mr. CARR. Last year, you expected to issue a final EIS in this matter by January 29, 1994 with a record of decision around March 2, 1994. Were these dates met? If not, why not?

[The information follows:]

The Federal Aviation Administration (FAA) had every intention of completing the EIS as quickly as possible. The timing of the release was delayed because of the need to extend the comment period numerous times to accommodate requests from the Governor of New Jersey, the Port Authority of New York and New Jersey, and the New Jersey Coalition Against Aircraft Noise. The comment period finally closed November 23, 1993. A total of 369 days was allowed to receive comments from interested parties. The FAA expects to release the Final EIS in the very near future.

CONTRACT MAINTENANCE CONVERSION TO IN-HOUSE MAINTENANCE

Mr. CARR. Last year, the FAA provided a fact sheet to the committee which indicated that the agency would review its maintenance contracts, seek to identify all work which could be transitioned to in-house maintenance, and provide schedule and pricing estimates for that transition. Has that work been completed, and if so, what are your recommendations for conversion to in-house maintenance?

[The information follows:]

The hardware maintenance contracts for fiscal year 1994 have been reviewed. Recommendations for in-house maintenance conversion are as follows:

1. On-site maintenance for ICSS and AWOS. The conversion of on-site maintenance for AWOS was completed on April 1, 1994. The conversion of on-site maintenance for remaining ICSSs is underway and will be completed during FY 1995 with the upgrade of selected types and the development of required maintenance documentation.
2. Depot repair of selected types of ICSSs. The conversion of the depot repair of Type III ICSSs manufactured by Denro, Inc. will be accomplished in FY 1995 with the upgrade of these systems.
3. Operation and on-site maintenance of the Model 1 FSAS Full Capacity AWP. The conversion of operations and on-site maintenance for the AWP is currently underway and will be completed by December 1994.
4. We are reviewing current methods to determine if in-house maintenance would provide long-term cost efficiencies.

IG REPORT—SMOKE IN THE COCKPIT

Mr. CARR. Please provide a copy of the Office of the Inspector General report No. E5-FA-4-002, dated November 1993 regarding FAA's airworthiness directive on smoke in the cockpit.

[The information follows:]

The Inspector General issued the November 1993 report in response to a hotline complaint alleging the FAA refused to enforce existing regulations, thereby violating Federal law, and FAA officials made false statements regarding equipment manufactured by the Vision Safe Corporation. The OIG determined FAA complied with existing regulations and did not violate Federal laws, and no evidence was found indicating the FAA officials made false statements regarding the certification of the complainant's device.

As additional information, following is a March 11, 1994 letter from the OIG to the President of Vision Safe Corporation on this same issue. The OIG determined that FAA has taken appropriate action regarding hazards associated with smoke in the cockpit. The OIG re-emphasized that FAA has not ignored the serious hazard of pilot-vision loss due to dense, continuous smoke in the cockpit. Based on the OIG's review, they advised the Vision Safe Corporation that the lack of evidence linking the condition of pilot-vision loss to aircraft accidents does not warrant further attention by FAA at this time.

MAR 11 1994

Mr. Bert Werjefelt
President
Vision Safe Corporation
P.O. Box 5011
Kaneohe, HI 96744-5011

Dear Mr. Werjefelt:

Following your review of our report entitled: "Federal Aviation Administration Smoke in the Cockpit," you raised additional points in telephone conversations with, and documentation provided to, my staff. You continue to cite the Federal Aviation Administration's (FAA) failure to take necessary action to correct the unsafe condition of pilot-vision loss due to dense, continuous smoke in the cockpit. Specifically, you focused our attention on two points not covered in our report: (1) a newspaper article reported a major aircraft manufacturer considered "smoke" the suspected cause of seven accidents, and (2) FAA's regulations concerning "smoke" are conflicting. Based on the results of our additional review, we continue to find FAA has taken appropriate action regarding hazards associated with smoke in the cockpit.

To respond to these two additional points, we performed further work to supplement our original report (copy enclosed). We discussed relevant issues with a major aircraft manufacturer and the FAA engineers. We also reviewed the additional documentation you provided, as well as additional documentation obtained from the aircraft manufacturer and FAA.

Concerning the newspaper article on the major manufacturer, the June 25, 1991, article quoted an aircraft manufacturer as saying ". . . on its jets alone in the past three decades there have been seven accidents in which smoke in the cockpit was a suspected cause." When we attempted to get further information from this manufacturer, a manufacturer's representative denied the statement's accuracy. He stated smoke was not the cause of accidents involving the manufacturer's airplanes, adding the manufacturer had unsuccessfully attempted to determine the source of the statement. Without confirmation from the manufacturer, we did not pursue this issue further.

Concerning conflicting FAA regulations, you cited an excerpt from a letter written by the FAA Administrator stating FAA does not enforce the regulation for conditions of "dense continuous smoke." You maintain this statement conflicts with Advisory Circular (AC) 25-9A--Smoke Detection, Penetration, and Evacuation Tests and Related Flight Manual Emergency Procedures--which prescribes the use of "smoke displacement equipment" to eliminate the unsafe conditions of loss of pilot vision when there is dense, continuous smoke in the cockpit. Furthermore, you stated the Code of Federal Regulations, Title 14, Part 39, requires FAA to issue an airworthiness directive (AD) when an unsafe condition exists. Therefore, in your view, FAA should be consistent and take the AD action to protect a pilot's vision from dense, continuous smoke in the cockpit.

The referenced AC provides guidelines to conduct certification tests relating to smoke detection, penetration, and evacuation. ACs offer methods of demonstrating compliance with the applicable airworthiness requirements. They do not constitute regulations and are not intended to require anything beyond that specifically required by the regulations. The AC 25-9A was a "draft" AC issued for public comment. FAA amended the AC based on the analysis of public comment, and the "official" AC 25-9A no longer contradicts the regulations.

As indicated in our original report, FAA has not ignored the serious hazard of pilot-vision loss due to dense, continuous smoke in the cockpit. FAA recently performed an evaluation of existing technologies to evacuate smoke from the cockpit. FAA reviewed accident and incident records from several agencies including the National Transportation Safety Board's (NTSB) "Accident and Incident Data System" and the National Aeronautics and Space Administration's "Aviation Safety Reporting System." However, FAA did not find any indication existing regulations and guidance resulted in an unsafe condition.

In addition, FAA performed a review of regulations and certification requirements to determine any appropriate further action to ensure a pilot's critical-vision needs. FAA found no hard evidence any accidents resulted from loss of vision or from other related causes, such as lack of proper protective breathing equipment and accessory equipment to protect the eyes from the effects of irritating smoke and fumes. As previously reported, FAA has taken action in response to the accidents cited in the information you provided including:

- (1) improvements in protective breathing equipment for the flight crew,
- (2) installation of smoke detectors in the lavatories, and
- (3) rulemaking to improve fire-fighting capability.

The FAA's findings were consistent with those of NTSB. Although NTSB also acknowledges the serious hazard of smoke in the cockpit, the NTSB investigations have not found smoke in the cockpit of transport category airplanes caused any specific accident. Moreover, based on prior work by my office (e.g., inspection of the FAA's responsiveness to suspected aircraft maintenance and design problems), we found the FAA's actions regarding the condition of pilot-vision loss due to dense, continuous smoke in the cockpit consistent with its overall policy for correcting maintenance and design problems.

Based on our review, the lack of evidence linking the condition of pilot-vision loss to aircraft accidents does not warrant further attention by FAA at this time. If you have further questions, please feel free to call me on (202) 366-1454, or my Deputy, Toni Dawsey, on (202) 366-9858.

Sincerely,

Original signed by
Wilbur L. Daniels

Wilbur L. Daniels
Assistant Inspector General
for Inspections and Evaluations

Enclosure

Office of Inspector General
Inspection Report

FEDERAL AVIATION ADMINISTRATION
SMOKE IN THE COCKPIT

Report Number: ES-FA-4-002



FEDERAL AVIATION ADMINISTRATION
SMOKE IN THE COCKPIT

INTRODUCTION

This report responds to a hotline complaint dated March 10, 1993, regarding the Federal Aviation Administration's (FAA) failure to issue an airworthiness directive (AD)¹ to ensure pilot vision when there is dense, continuous smoke in the cockpit. Specifically, the complainant alleges (1) FAA refused to enforce existing regulations, thereby violating Federal law, and (2) FAA officials made false statements regarding equipment manufactured by the Vision Safe Corporation.

BACKGROUND

According to Federal Aviation Regulation (FAR) 25.831(d), smoke removal is necessary if smoke accumulates in the cockpit. The complainant believes current equipment and capabilities on aircraft are inadequate to satisfy this regulation and cites 12 aircraft accidents occurring between 1970 and 1991, linked to dense, continuous smoke in the cockpit. Furthermore, the complainant believes the use of his company's device, made of transparent material that can be inflated to fill the space between the pilot's safety goggles and the windshield/instrument panel in the event the cockpit fills with smoke, satisfies the regulation. Since FAA has not mandated the use of his device, the complainant alleges the agency is violating Federal law.

According to Code of Federal Regulations Title 14 Part 39, the FAA Administrator is responsible for issuing an AD when an unsafe condition exists. To fulfill this responsibility, FAA engineers, with knowledge of professional aerospace engineering concepts, research identified problems, then take appropriate action based on the evidence. Some of the actions taken by FAA in response to the 12 accidents cited by the complainant include:

¹FAA regulation requiring a mandatory aircraft inspection, repair, or modification within a specified time.

- improvements in protective breathing equipment for the flight crew,
- installation of smoke detectors in the lavatories, and
- rulemaking to improve fire-fighting capability.

On September 20, 1991, the National Transportation Safety Board (NTSB) Chairman responded to letters received from the complainant recommending FAA promulgate a rule that pilots be able to see at all times during dense, continuous smoke. The NTSB Chairman replied ". . . the FAA would be unlikely to adopt such a rule without considerable studies to assure that the rule was warranted and that compliance was practical without introducing new hazards." Furthermore, the NTSB Chairman believed it would be ". . . inappropriate to make the recommendation . . . because it would be tantamount to recommending the endorsement and selection of a specific product, which is contrary to NTSB's policy."

On March 29, 1993, the FAA Administrator responded to the complainant's letters [independent of the Office of Inspector General (OIG) review] regarding the smoke in the cockpit issue. After reviewing the accidents and incidents cited by the complainant, the Administrator determined the complainant's smoke-displacement device did not remove smoke from the cockpit as required by FAR 25.831(d). An AD mandating this device, therefore, was deemed unnecessary.

PREVIOUS COVERAGE

On October 20, 1993, OIG issued a draft inspection report on FAA's responsiveness to suspected aircraft maintenance and design problems. This report found FAA performed extensive analysis on airline-reported incidents of smoke in the aircraft but found no evidence to support issuance of an AD.

FINDINGS AND DISCUSSION

In conducting the inquiry, we discussed relevant issues with the complainant and the FAA engineers. We also reviewed documentation provided by the complainant and the FAA files relating to the allegations. The following is a discussion of our findings.

ALLEGATION 1: FAA officials refuse to enforce existing regulations, thereby violating Federal law.

Finding: FAA complied with existing regulations.

The complainant proposed issuance of an AD to require installation of his smoke-displacement device in aircraft. FAA did not agree that the complainant's smoke-displacement device meets the requirements of FAR 25.831(d), because the device does not remove smoke from the cockpit. In addition, FAA disagreed with the complainant that use of his device would have altered the outcome of the 12 accidents. FAA research determined some of the accidents cited by the complainant involved "bomb" explosions or flight crews not following prescribed procedures. In other accidents, the crew had sufficient visibility to safely land the aircraft without using a special smoke-displacement device. Therefore, FAA did not issue an AD to require installation of a smoke-displacement device in the aircraft.

OIG determined the FAA's actions were consistent with its policy for correcting maintenance and design problems. While the complainant may disagree with the FAA's decision, the agency acted in accordance with Federal laws.

ALLEGATION 2: FAA officials falsely stated the equipment manufactured by the complainant is not FAA-certified.

Finding: No evidence was found indicating the FAA officials made false statements about the complainant's smoke-displacement device not being certified.

The complainant contends FAA officials have falsely told his customers (i.e., airlines) that his equipment is not FAA-certified and is only for experimental and developmental purposes. In response, FAA reports it advised airlines the complainant's smoke-displacement device can be used if it does not interfere with other equipment, but no FAA-certified device exists to remove smoke from the cockpit. While the FAA's statements are true, the agency should ensure the airlines understand the complainant's device is FAA-certified--although not for the purposes required by Federal regulation (e.g., removal of smoke in the cockpit).

CONCLUSION

In summary, OIG determined: (1) FAA complied with existing regulations and did not violate Federal laws, and (2) no evidence was found indicating the FAA officials made false statements regarding the certification of the complainant's device.

FAA REPORT ON IN-FLIGHT COCKPIT SMOKE EMERGENCIES

Mr. CARR. Please provide a copy of FAA's report to the committee dated May 15, 1992 regarding in-flight cockpit smoke emergencies. [The information follows:]

The May 15, 1992 report on FAA's findings following a review of regulations and certification requirements in order to determine what action should be taken to ensure that pilots' critical vision needs are not obscured is enclosed.

Also enclosed is a copy of an October 25, 1993 report as a result of the requirement in Section 207 of the Airport and Airway Safety, Capacity, Noise Improvement, and Intermodal Transportation Act of 1992, Public Law 102-581. In this report, FAA was directed to evaluate the effects of quantities of smoke in aircraft cockpits, evaluate the efficiency of existing technologies to evacuate smoke from the cockpit, and estimate the installation costs of such technologies for the commercial airline fleet.

[CLERK'S NOTE.—Due to the length of the 1993 study, all but the executive summary has been removed from the record, and is retained in the Committee files.]

711

REPORT TO CONGRESS

Safety Impact of In-Flight
Cockpit Smoke Emergencies

Washington, D.C. 20591

Report of the Federal Aviation Administration
pursuant to Senate Report 102-148 of the
Department of Transportation and Related
Agencies Appropriations Act for FY 1992



US Department
of Transportation
Federal Aviation
Administration

Office of the Administrator

800 Independence Ave S W
Washington, D C 20591

MAY 15 1992

The Honorable William Lehman
Chairman, Subcommittee on Transportation
Committee on Appropriations
House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

The enclosed report is submitted in response to provisions in Senate Report 102-148 on the Department of Transportation and Related Agencies Appropriations Act for FY 1992, concerning the safety impact of in-flight cockpit smoke emergencies. The Federal Aviation Administration (FAA) was asked to report on its findings following a review of regulations and certification requirements in order to determine what action should be taken to ensure that pilots' critical vision needs are not obscured.

Identical reports are being provided to Chairman Lautenberg, Senator D'Amato, and Representative Coughlin.

Sincerely,

Barry Lambert Harris
Acting Administrator

Enclosure

EXECUTIVE SUMMARY

This report has been prepared in response to language in Senate Report 102-148 on the Department of Transportation and Related Agencies Appropriations Act for FY 1992. The Federal Aviation Administration (FAA) was requested to report on its findings following a review of regulations and certification requirements in order to determine what action should be taken to ensure pilots' critical vision needs are not obscured.

BACKGROUND

There have been very few incidents involving smoke in transport category airplanes which have resulted in the vision of the flightcrew being reduced to the point where accidents and loss of life have resulted. In the two cases of which we are aware, there is no hard evidence that the accidents resulted from loss of vision or from other related causes, such as lack of proper protective breathing equipment (PBE) and accessory equipment to protect the eyes from the effects of irritating smoke and fumes. It is likely that fire in the airplane cockpit may have incapacitated the flightcrew, resulting in loss of control.

On November 3, 1973, there was a fatal accident in Boston, Massachusetts, involving a Boeing Model 707 freighter airplane. Investigation of this accident prompted the National Transportation Safety Board (NTSB) to evaluate PBE used by a number of air carriers. The NTSB reported that smoke goggles used by several air carriers did not adequately protect crewmembers from smoke and certain smoke goggles in use appreciably restricted the wearer's vision. The NTSB recommended that all transport category airplanes, regardless of date of certification, be required to comply with current Federal Aviation Regulations (FAR) on protective breathing equipment (§25.1439), and that all smoke goggles presently in use be inspected to ensure that they comply with FAR §25.1439. One of the NTSB findings was that initial certification smoke testing did not consider procedures for evacuation of continuously generated smoke, and the presence of dense smoke in the cockpit was cited as a contributory factor in the accident. This airplane was certificated long before the current certification procedures regarding smoke testing were adopted. Further, the crew elected to overfly several airports which would have been suitable for landing. Airplane flight manuals in use today require immediate landing at the nearest suitable airport whenever smoke or fire is detected on the airplane.

On September 23, 1983, a fatal accident occurred in Abu Dabi involving a Boeing 737. An incendiary device apparently detonated in the forward cargo compartment resulting in a fire which propagated into the forward passenger cabin and possibly the cockpit. The crew reported the fire, and the cockpit voice recorder indicated that the crew called for oxygen. The

airplane crashed in the desert in a near level attitude and was still pressurized. Due to extensive fire damage, it is not known whether lack of visibility in the cockpit was a problem or if other factors led to the impact.

DISCUSSION

While there have been a number of cases where fire in the airplane cabin or cargo compartments has resulted in smoke in the cockpit, only the cases cited suggest the loss of visibility as a factor.

To address concerns regarding PBE and its ability to protect the flight crewmembers from smoke and fumes, the FAA has worked to ensure that the equipment required to be installed in transport category airplanes provides adequate protection. Effective July 6, 1987, §121.337 of the FAR was revised to require a new class of PBE, which is referred to as crewmember protective breathing equipment. A technical standard order, which establishes minimum performance standards for this PBE, was issued in March 1990. This equipment provides improved protection for crewmembers in the presence of smoke or toxic fumes and additional airflow needed when the crewmembers are required to fight in-flight fires. A change to the certification rules to parallel the FAR Part 121 rule change is currently being proposed through the rulemaking process.

Advisory Circular (AC) 25-9, "Smoke Detection, Penetration, and Evacuation Tests and Related Flight Manual Emergency Procedures," dated July 29, 1986, discusses hazards associated with the accumulation of smoke in the cockpit. Paragraph 4e(2) of the AC states the following:

Incidents of fire or smoke that cannot be extinguished continue to occur. Smoke and fire procedures should, therefore, be formulated considering that the fire or smoke exposure may be continuous. Smoke from fires in cargo or equipment located in inaccessible locations should be considered to be continuous, in particular. Continuous smoke from equipment bays, equipment cooling systems, the cockpit, and cargo compartments should be considered reasonably probable because these compartments have so many potential sources of smoke or have a history of fire or smoke occurrences.

The smoke evacuation test procedures for determining compliance with FAR §25.831(d) are typically designed to measure the time necessary to clear the cockpit of smoke after the pilot's view is obscured, without any further smoke being generated. This procedure is intended to measure the capability of the smoke

clearance procedures against a standard test condition. If the tests are run with smoke being generated continuously, the rate at which the smoke is introduced into the cockpit, along with other variables such as smoke density, heat, and particulate size, must be considered. These numerous variables tend to make each test unique and make it difficult for the FAA to establish a standard for compliance. Section 25.831(d) states: "If accumulation of hazardous quantities of smoke in the cockpit area is reasonably probable, smoke evacuation must be readily accomplished, starting with full pressurization and without depressurizing beyond safe limits." The AC states that smoke is to be generated in the cockpit until the cockpit instruments are obscured, at which point smoke generation is terminated. The crew then initiates the Airplane Flight Manual procedures for smoke evacuation. The equipment and procedures are considered to meet the requirements if the smoke concentration is reduced within 3 minutes so that any residual smoke does not distract the flightcrew or interfere with operations under instrument flight rules or visual flight rules. This procedure allows the smoke evacuation capability to be measured against a known standard. This demonstrated capability provides sufficient smoke evacuation reserve to enable the flightcrew to retain sufficient visibility of both the flight instruments and the outside world to continue safe flight and landing, even when a probable continuous smoke source is present. This is partially based upon the fact that, in a real-world event, the pilots would not wait until the instrument conspicuity is non-existent, but would initiate smoke evacuation procedures at the first sign of smoke in the cockpit.

Airplanes tested in accordance with AC 25-9 have not had a history of incidents, and we have no data to indicate they might. The airflow available to evacuate smoke that penetrates or originates in the cockpit, combined with the PBE installed to provide protection for the flightcrew from the effects of the smoke which can be present, is considered to provide an acceptable level of safety. A requirement to install and maintain a piece of equipment in the cockpit of modern transport airplanes to provide vision enhancement does not appear warranted. When proposing new airworthiness regulations, the FAA must be able to justify the increased costs associated with the rule change based on the benefit of lives saved in combination with the value of the airplane(s) which might be involved in potential accidents.

SUMMARY

No airplanes certificated since the AC was published have been lost due to the inability of the flightcrew to see the instruments or view the outside world through the windshield. We see no indication that such an event can reasonably be expected to occur. Under the Regulatory Flexibility Act, new

regulations must be shown to have a favorable cost/benefit ratio. We believe a rule change would be difficult to justify when the costs of certificating, installing, and maintaining a new piece of equipment are considered. The existing regulations, combined with the guidance contained in the AC, provide a cockpit environment that enables the pilot to land the airplane in situations where smoke is present in the cockpit.



U.S. Department
of Transportation
Federal Aviation
Administration

REPORT TO CONGRESS

Smoke in the Cockpit of Transport Category Airplanes

Washington, D.C. 20591 October 1993

Report of the Federal Aviation Administration
pursuant to Section 207 of the Airport and
Airway Safety, Capacity, Noise Improvement,
and Intermodal Transportation Act of 1992
(P.L. 102-581)



U.S. Department
of Transportation
Federal Aviation
Administration

Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

OCT 25 1993

The Honorable Norman Y. Mineta
Chairman, Committee on Public Works
and Transportation
House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

The enclosed report is submitted in response to the requirement in Section 207 of the Airport and Airway Safety, Capacity, Noise Improvement, and Intermodal Transportation Act of 1992, Public Law 102-581. The Federal Aviation Administration (FAA) was directed to report to the Congress on the effect quantities of smoke in the cockpit of an aircraft would have on a pilot's vision. As required, FAA has evaluated existing technologies to evacuate smoke from the cockpit, determined whether action should be initiated to change current regulations, and estimated the cost of installation for the commercial airline industry.

Identical letters have been sent to Chairman Hollings,
Senator Danforth and Congressman Shuster.

Sincerely,

David R. Hinson
Administrator

Enclosure

TABLE OF CONTENTS

	PAGE
Executive Summary.....	1
Background.....	1
The EVAS System.....	2
Regulatory History.....	4
Fire Protection Improvements.....	5
Theoretical Versus Likely Conditions.....	6
Methods for Smoke Evacuation.....	7
Smoke Evacuation Is Important.....	8
Cost.....	9
Summary.....	10
In-Flight Smoke-Related Incidents.....	12

EXECUTIVE SUMMARY

This report has been prepared in response to the Airport and Airway Safety, Capacity, Noise Improvement, and Intermodal Transportation Act of 1992, Public Law 102-581. Section 207 of the Act requires the Federal Aviation Administration (FAA) to evaluate the effects of quantities of smoke in aircraft cockpits, evaluate the efficiency of existing technologies to evacuate smoke from the cockpit, and estimate the installation costs of such technologies for the commercial airline fleet. The FAA has reviewed accident and incident records from several agencies and has not found any indication that existing regulations and guidance have resulted in an unsafe condition. Notwithstanding that finding, two methods of coping with smoke which is continuously generated and accumulates in the cockpit have been reviewed. The first of these is a "smoke chute," which allows controlled smoke venting from the cockpit. The second is a smoke displacement device which provides a restricted path from the pilot's smoke goggles to a small set of critical flight instruments and a limited area of the windshield. The estimated cost of the first method is \$23.5 million over a 10-year period. The estimated cost of the second method is \$70 million over the same period. The installation of a smoke displacement device has the added disadvantage that it does not evacuate smoke from the cockpit, which is required by FAA safety regulations, and its use may adversely affect safety because the flightcrew may spend time locating and activating the device rather than locating and eliminating the source of the smoke. The FAA has not identified an unsafe condition that warrants the expenditure of these amounts of money, and has determined that in the second method, there is no evidence that the the device would have been beneficial in preventing any of the accidents and incidents studied.

IG AUDIT ON PROCUREMENT PRACTICES OF NAS PROGRAM

Mr. CARR. Please provide a copy of the summary of IG audit AS-FA-4-006, dated February 9, 1994, and the FAA's response to those findings.

[The information follows:]

AUDIT OF FUNDING AND PROCUREMENT PRACTICES OF THE OFFICE OF NAS PROGRAM MANAGEMENT SERVICE

Federal Aviation Administration

Report No. AS-FA-4-006

February 9, 1994

Conclusions

The Office of NAS Program Management Service (APM), within the Federal Aviation Administration (FAA) did not always charge travel costs to the correct appropriation, and items were purchased for staff members that gave the perception of being gifts. In addition, internal controls over small purchase transactions were not implemented. These conditions occurred because management did not follow established policies and procedures or provide adequate oversight. As a result, appropriation fund balances did not accurately reflect travel costs, and APM does not have assurances that only authorized goods and services were acquired, prices paid were reasonable, and General Services Administration schedules were fully considered.

Monetary Impact

Although there is no immediate monetary impact, implementing the report's recommendations will strengthen APM's controls over funding travel and procuring small purchases.

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Recommendations

We recommended that the Associate Administrator for System Engineering and Development instruct APM management officials on their responsibilities to comply with established policies and procedures for charging travel costs to the correct appropriation, ensure purchases are directly related to the accomplishment of the office's mission and not for personal convenience, and comply with small purchase procedures. We also recommended that the Associate Administrator report the administrative functions of APM as an assessable component under the Federal Managers' Financial Integrity Act.

Management Position

FAA concurred with the recommendations and has either taken action or planned corrective actions that are fully responsive.

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U.S. Department
of Transportation
Federal Aviation
Administration

APPENDIX
(4 pages)

Memorandum

Subject INFORMATION: OIG Draft Report on the Audit
of Funding and Procurement Practices of the
Office of NAS Program Management Service

Date Nov 12 1976

From Assistant Administrator for Budget
and Accounting

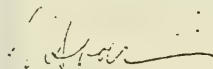
Reply to
Attn. of.

To Director, Office of Aviation and Surface
Transportation Audits, JA-10

As requested by your November 5 memorandum, we have reviewed the subject Office of Inspector General (OIG) audit report. Our comments are provided in the attachment.

The audit report contains eight recommendations. We fully concur with seven recommendations and concur with comment on one recommendation. Our planned corrective actions with estimated completion dates for implementing the eight audit recommendations are provided in the attachment.

We appreciate the opportunity to comment on your draft report and request that you incorporate our comments in any final report that you may issue.


Nicholas S. Stoer

Attachment

Attachment

Federal Aviation Administration (FAA) Position on Recommendations Contained in
the Office of Inspector General (OIG) Draft Report on the Audit
of the Funding and Procurement Practices of the
Office of NAS Program Management Service (APM)

FINDING - Improvements Needed in Funding and Procurement Practices:

APM did not always charge travel costs to the correct appropriation. Also, small purchases were: (1) purchased for both personal convenience and to satisfy the personal desire of an official or employee; (2) split to avoid the imprest fund dollar limitation; and (3) not made from required sources of supplies. In addition, vouchers for reimbursement through the imprest fund did not contain proper documentation, show evidence of separation of duties, or correctly identify the object classification code. These conditions occurred because management did not follow established policies and procedures or provide adequate oversight. As a result, appropriation fund balances did not accurately reflect travel costs and APM does not have assurances that only authorized goods and services were acquired, prices paid were reasonable, and General Services Administration (GSA) schedules were fully considered. OIG recommends the Associate Administrator for System Engineering and Development:

OIG Recommendation 1: Instruct APM management on their responsibilities of complying with policies and procedures established in Code of Federal Regulations (CFR) 41, the Federal Acquisition Regulations, and FAA orders to ensure:

a. Travel costs are charged to the appropriation from which the traveler's salary is funded or meets the exceptions in FAA Order 2500.8A, Funding Criteria for Operations, Facilities and Equipment, and Research, Engineering and Development Accounts.

FAA Response: Concur. In a memorandum dated May 27, a copy of FAA Order 2500.8A was distributed to APM management along with specific guidance directing that all travel funded from an appropriation other than the appropriation from which the traveler's salary is funded must be explicitly justified and documented on the travel order. Additionally, in a memorandum dated August 31, APM management requested the Office of Accounting to transfer incorrectly charged travel costs to the appropriate appropriation.

b. Purchases are directly related to the accomplishment of the office's mission and not for personal convenience.

FAA Response: Concur. A team composed of both managers and program analysts was formed to develop standard operating procedures (SOP) to ensure compliance with CFR 41, part 101-26.103, Establishing Essentiality of Requirements, and FAA Order 3450.7E, Incentive Awards Program. The target date for completion of the SOP's is January 31, 1994. An APM all hands meeting is planned in the second quarter of fiscal year (FY) 1994 to discuss the SOP's and their implications.

c. Incentive awards follow guidelines established by the Incentive Awards Program.

FAA Response: Concur. Refer to our response to recommendation 1.b.

d. Purchases over the imprest fund dollar limitation receive special authorization from the Accounting Officer or are made through the correct small purchase method.

FAA Response: Concur. Imprest fund procedures will also be addressed in the SOP's referenced in our response to recommendation 1.b.

e. Vouchers for reimbursement through the imprest fund are properly documented with signatures and procurement transactions contain required separation of duties among personnel.

FAA Response: Concur. APM has already implemented imprest fund procedures which require separate management approval, fund certification, and proper documentation. These procedures, in addition to procurement transaction procedures, will be addressed in the SOP's referenced in our response to recommendation 1.b.

f. Object classification codes correctly identify the type of purchase made.

FAA Response: Concur. Refer to our response to recommendation 1.e. Additionally, in a memorandum dated August 25, a copy of the object classification codes was forwarded to all APM employees for their subsequent use in coding fiscal documents.

OIG Recommendation 2: Instruct the Director of APM to participate in the FAA program that allows offices to continue purchasing through the GSA catalog when their centrally funded account is expended.

FAA Response: Concur with comment. APM became a participant in the GSA program during FY 1993 and would have done so earlier if the guidance provided to program offices had been clearer. Thus far in FY 1994, APM has already added \$5,000 to its centrally funded account.

OIG Recommendation 3: Report the administrative functions of APM as an assessable component under the Federal Managers' Financial Integrity Act. Also, schedule risk assessments and/or management control evaluations in the Management Control Plan as appropriate.

FAA Response: Concur. APM will include these components in the FY 1994 update to the Management Control Plan which is tentatively scheduled to be submitted to the Department in March 1994. With respect to your observation regarding the Research, Engineering and Development (R, E&D) funding of APM's Information Resource Management Branch, APM recognizes that it is more appropriate to fund these five positions based on the nature of the workload and appropriation supported (i.e., R, E&D, Facilities and Equipment, or Operations). APM will review the positions' workload and make the appropriate funding changes in future budget submissions.

FAA HEALTH BENEFITS

Mr. CARR. Please summarize FAA's budget for health benefits for employees for each of the fiscal years 1989 through 1995, by appropriation, and show the total percentage change for each year.

[The information follows:]

HEALTH BENEFITS

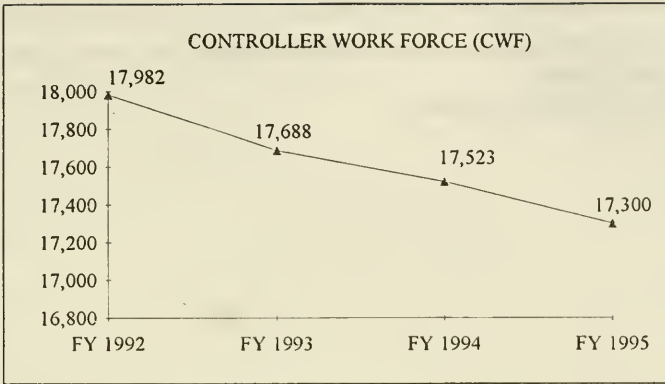
	Operations	Facilities & Equipment	Research, Engineering & Development
FY 1989 Actual	83,368	*N/A	1,106
% Change	18.8%	0.0%	16.2%
FY 1990 Actual	99,033	**N/A	1,285
% Change	10.0%	0.0%	-5.1%
FY 1991 Actual	108,915	2,948	1,220
% Change	10.9%	36.4%	37.1%
FY 1992 Actual	120,776	4,021	1,673
% Change	7.4%	34.0%	2.9%
FY 1993 Actual	129,666	5,389	1,721
% Change	3.6%	3.4%	6.2%
FY 1994 Estimate	134,389	5,573	1,828
% Change	3.0%	3.4%	3.0%
FY 1995 Estimate	138,355	5,762	1,883

* No Activity 5 or 8 for FY 1989.

**No data available.

CONTROLLER WORK FORCE END-OF-YEAR EMPLOYMENT

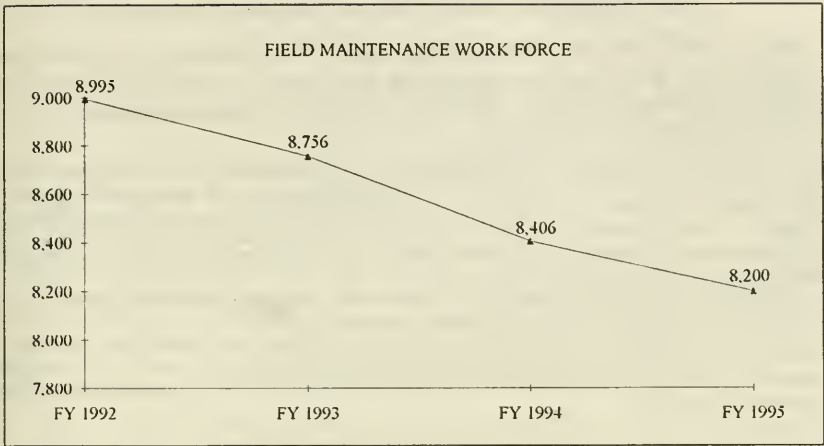
Mr. CARR. Please provide a line graph showing end of year employment for your controller work force for fiscal years 1992-1995. [The information follows:]



FIELD MAINTENANCE WORK FORCE END-OF-YEAR EMPLOYMENT

Mr. CARR. Please provide a similar graph for your field maintenance work force.

[The information follows:]



BILL LANGUAGE: PROVISION OF AVIATION SERVICES

Mr. CARR. You are requesting new bill language in fiscal year 1995 which would allow operating funds to be used for "the provision of aviation services." Why is this new language needed?

[The information follows:]

For fiscal year 1995, in FAA's operations appropriation, we are requesting that the phrase "provision of aviation services including the" be inserted as follows in the clause, "provided, that there may be credited to this appropriation funds received . . . for expenses incurred in the provision of aviation services, including the maintenance and operation of air navigation facilities and for issuance, renewal or modification of certificates, [etc.]"

The purpose of this language is to broaden the category of fee receipts that would be available for use in FAA's operations account.

The new language would permit use of fees received from such FAA activities as seminars to educate aviation medical examiners (when these fees are established), recording aircraft security interest conveyances, and providing copies of aircraft registration documents.

AIR TRAFFIC OVERTIME HOURS

Mr. CARR. On page 24, why are you projecting that air traffic overtime hours will rise in fiscal year 1994 after several years of decline?

[The information follows:]

In fiscal year 1994 and fiscal year 1995, we are projecting an increase in overtime usage due to the training required for new Capital Investment Plan equipment associated with the Voice Switching Communication System and the Advanced Automation System. Overtime will be required to backfill for controllers that are undergoing training in the new systems.

Mr. CARR. In the recent staffing standards study, it is indicated that overtime is monitored as one signal of staffing imbalance. Does the rise in overtime, from 281,200 hours in fiscal year 1993 to 357,100 in fiscal year 1994, indicate greater staffing imbalances?

[The information follows:]

No, the fiscal year 1993 actual overtime fell below the fiscal year 1993 estimated overtime and below the fiscal year 1992 actual overtime used. The fiscal year 1994 and fiscal year 1995 overtime estimates are based on the actual fiscal year 1992 overtime. In fact, at 357,100 hours in fiscal year 1994, overtime represents less than one percent of controller workforce labor. Overtime usage is projected to increase starting in fiscal year 1995 as new systems such as the Voice System Communication System and Initial Sector Suite System come on line. Overtime will be required to backfill for controllers undergoing training for the new systems.

AIR TRAFFIC ASSISTANTS

Mr. CARR. By the end of fiscal year 1995, you expect to have 220 air traffic assistants. This reflects a steady decline from the 550 at the end of fiscal year 1991. What are the roles and responsibilities of this position and how can the FAA accommodate such reductions?

[The information follows:]

The Air Traffic Assistant position was developed shortly after the 1981 air traffic controller strike. The purpose of the position was to supplement the Air Traffic Controller position with non-controller, administrative-type assistance until the controller work force could be rebuilt. The controller work force is now fully staffed and no longer requires augmentation by Air Traffic Assistants. The Air Traffic Assistant positions are being abolished except for the flight data communications functions in each Air Route Traffic Control Center (ARTCC). This function will require eleven flight data specialists (former Air Traffic Assistants) at each of 20 ARTCC's. That

is the total 220 Air Traffic Assistants referred to in the fiscal year 1995 budget submittal.

AIR TRAFFIC STAFFING REDUCTIONS

Mr. CARR. The justifications indicate that most of the staffing reduction in air traffic is the result of contracting out certain low-activity control towers. However, on page 26 you indicate that 99 positions are being deleted in fiscal year 1995 from your en route centers. What are these positions?

[The information follows:]

This reduction is planned to decrease staffing disparities between our en route centers and towers. It is also part of our streamlining plan to reduce the number of first line supervisors in order to improve our employee to supervisor ratio.

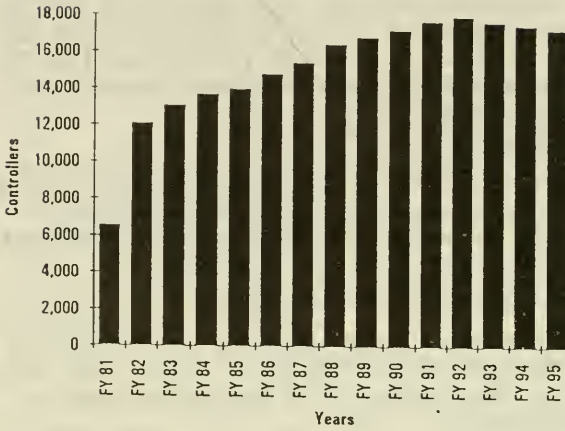
This staffing redistribution does not impact personnel working in operational positions.

CONTROLLER WORK FORCE

Mr. CARR. Please provide a graph depicting a chronological history of the controller work force from fiscal years 1981 through 1995 utilizing the raw data on page 27 of the justifications.

[The information follows:]

Controller Work Force (CWF)



CWF Employment

FY 81	6,575
FY 82	12,117
FY 83	13,084
FY 84	13,714
FY 85	13,998
FY 86	14,803
FY 87	15,433
FY 88	16,436
FY 89	16,832
FY 90	17,226
FY 91	17,721
FY 92	17,982
FY 93	17,688
FY 94 Est.	17,523
FY 95 Est.	17,300

ADP STREAMLINING

Mr. CARR. In various parts of the budget, the justifications describe savings from "ADP streamlining." What exactly is meant by this term?

[The information follows:]

ADP streamlining is a recognition that Information Technology costs can be reduced by consolidating administrative ADP support and services at the Washington Headquarters and at various regions and centers. Currently, many individual offices have separate in-house and contractual efforts to support similar ADP systems. We believe that consolidating many of these individual ADP efforts will result in the type of savings and efficiencies necessitated by sound management and encouraged by the National Performance Review Committee.

Mr. CARR. Please provide a table showing those savings by budget activity, and indicate the base on which those savings are applied.

[The information follows:]

We do not have a precise base against which these reductions were taken. Many "ADP" contracts include costs that are not considered "support and services". Isolating these nonsupport and services costs is virtually impossible; it would require detailed examination of every support and services contract at headquarters, the regions, and centers to determine which costs to include in the baseline. ADP support and services costs include such items as the installation, moving, or maintenance of ADP hardware and/or software; Local Area Network (LAN) administration and support; computer help-desk support; and training. Often, contracts covering ADP support and services also include such capital costs as hardware and software acquisition, supplies, and applications development. Since these costs are not segregated, it becomes impossible to establish a reliable/accurate base. The \$3,000,000 cited is a recognition that there will be savings as a result of ADP streamlining, however, for the reasons mentioned previously, we can not be certain of the applicable base.

OPERATIONAL TRAVEL REQUIREMENTS

Mr. CARR. On page 32, you are "reassessing the frequency of operational travel requirements." How does the FAA define "operational" travel, and what is the likely impact of cutting this activity 13 percent, as the budget proposes?

[The information follows:]

The agency does not have a precise definition of operational travel. There are a number of areas in which we can clearly determine that the incumbent must travel in order to perform a needed function, such as Air Traffic Control Evaluation Specialists and System Maintenance Technicians. There are also many areas in which we traditionally have held that face-to-face contact between people was necessary in order to accomplish the mission of maintaining the safest air traffic system in the world. However, we recognize that some of these areas are gray and it is these that we are reassessing to see if there are other ways to meet the communications requirement. We can meet this reduction goal without impacting the safety of the system.

PERMANENT CHANGE OF STATIONS (PCS)

Mr. CARR. Your fiscal year 1994 budget requested \$19 million for 466 permanent change of station moves for your air traffic work force. Your current estimate is that only 68 moves will be provided in fiscal year 1994, at a cost of \$3 million.

What caused you to reduce your PCS moves by 84 percent, and where did you transfer the \$16 million?

[The information follows:]

Air Traffic had to internally reprogram \$16 million originally scheduled for PCS in order to partially fund Locality Pay shortfall. Funding flexibility in Air Traffic

is extremely limited due to unusually high percentage (94 percent) of personnel costs to total program.

Mr. CARR. Last year, you estimated average PCS costs at \$38,274 for fiscal year 1993, and \$40,816 for fiscal year 1994. The current estimates are \$41,515 and \$44,191, respectively. Obviously, you have not controlled the high costs of this program despite this Committee's suggestions.

Why are you still unable to control the average cost of your PCS moves?

[The information follows:]

The average cost of Air Traffic PCS moves for FY93 and FY94 has increased despite rigorous fiscal management efforts due to external economic conditions and the legal obligations of PCS expenses. Certain PCS entitlements including relocation allowances, travel and shipment of household goods are mandated by law and can not be denied. Other complicating economic conditions and factors are:

1. The severe reduction in the number of PCS moves has altered the demographics of those who move as well as the grade levels involved. Moving a higher percentage of more senior and established people involves greater costs such as shipping more goods, and the sale and purchase of more expensive homes.

2. The reduced number of moves tends to concentrate moves in higher-cost, large metropolitan areas. All related PCS costs are increased in these high-cost areas.

3. Recently improved economic conditions affect PCS costs. Real estate markets are directly influenced by interest rates and other economic conditions. This translates into different decisions by movers as to whether to buy, sell or rent their homes. For example, there has been a marked increase in utilization of relocation services contracts which accounts for a substantial percentage of the total PCS average costs increases. Associated costs such as per-diem, travel, and other related expenses increase proportionally.

SPARES AND REPAIRS FUNDING

Mr. CARR. In fiscal year 1994, Congress added \$9,000,000 to your request for depot maintenance, in order to address long-standing shortfalls in spares and repairs. Are there any plans to reprogram any of those funds to other uses?

[The information follows:]

Initially, we did reprogram these funds to help cover upwards of \$80 million in unbudgeted locality pay costs that we had to absorb. We must cover all known liabilities. We have not ignored the funding direction. We are in the process of restoring these funds and will complete this process very shortly.

NAS LOGISTICS FULL TIME POSITION REDUCTIONS

Mr. CARR. According to the staffing data on page 42, your full-time positions dedicated to NAS logistics support has dropped from 1,592 in fiscal year 1991 to an estimated 1,285 in fiscal year 1995. How can you handle a rising inventory of facilities with this 19 percent drop in staffing?

The reduction is not as severe as the question might indicate. Of the 1,592 full time positions (FTP), 254 were transferred to other activities consistent with the Agency's realignment of functions in the fall of 1992. The remaining 1,338 FTPs will be reduced by only 4 percent over four years, FY 1992 through FY 1995, fully consistent with Agency plans to streamline and improve existing processes.

NAS SUPPLY SUPPORT ADDITIONAL FUNDING

Mr. CARR. On page 43, you are requesting an additional \$10,754,000 in NAS supply support funds for new systems projected to come on line in fiscal year 1995. Please provide a breakdown of these funds by system.

[The information follows:]

Automation: \$1,532,000

ARTS 3A ISP	\$357,000
ARTS 3A IOP	\$720,000
ARTS 2A ISP	\$253,000
3LVW/RMM CD2	\$112,000
TMS PHASE II	\$90,000

Telecommunications: \$1,325,000

STVS	\$1,325,000
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Surveillance: \$2,787,000

RRCS (3)	\$244,000
MODE-S	\$1,000,000
SSRBD	\$900,000
VIDMAPPER	\$643,000

Navigation & Landing: \$968,000

RVR-NG	\$21,000
PAPE (2nd Buy)	\$132,000
LORAN CMNTR	\$221,000
TALA	\$115,000
ILSMK1 RE	\$82,000
VORTACAN Kits	\$104,000
MALSR (2nd Buy)	\$83,000
Snowdepth MON	\$92,000
TACAN Antenna	\$32,000
ILS WILCOX (2)	\$22,000
ILS WIII RE	\$64,000

Weather: \$800,000

LLWAS	\$800,000
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Environmental: \$2,286,000

Uninterrupted Power System	\$535,000
Engine Generators	\$1,000,000
Power Conditioning System	\$751,000

Aircraft: \$213,000

BEECH 300

\$213,000

Test Equipment: \$906,000

Test Equipment for

MODE S

\$453,000

ARSR-4

\$453,000

Other Systems: (\$63,000)

Savings achieved through consolidation of
multi-use items.

BUYOUTS—FIELD MAINTENANCE WORK FORCE

Mr. CARR. I thought your buyout exempted the field maintenance work force. Yet on page 48 of the justifications, you show that the field maintenance work force will decrease by 206, 2.5 percent, in fiscal year 1995. Why is this?

[The information follows:]

In fiscal year 1995 we are planning to reduce the field maintenance work force by approximately 206 employment ceilings. Most of these reductions will be accomplished through the voluntary separation incentive payments program. However, these reductions will not be made in the safety work force, but in the sector support area, i.e., Sector Manager, Assistant Sector Manager, and other administrative positions. We are able to make these reductions in the administrative and management positions through our sector consolidation/realignment program. This program will start in late fiscal year 1994 and continue several years until we have consolidated 77 sector offices into approximately 35 sector offices, thus allowing the 206 employment ceiling reduction.

CONTRACT MAINTENANCE VS. IN-HOUSE MAINTENANCE

Mr. CARR. You are requesting an additional \$19,448,000 for contract maintenance in fiscal year 1995. Do you have clear evidence that, on a per staff-year basis, this will be cheaper than in-house work?

[The information follows:]

The relative merit of the two alternatives in regards to cost is dependent upon the amount of proprietary hardware and software in the system, the expected life-cycle of the equipment, and the availability of a manufacturer's support network. The potential initial and recurring cost of buying spares, licenses, training and test equipment needed for in-house repair and maintenance is a key cost driver.

Contracting is clearly cost effective for the repair of these FY 1995 budgeted systems which are composed of commercial components, since in-house expertise is not available.

While in-house maintenance support may provide long-term cost savings, in-house maintenance is not currently available to continue maintenance support of the systems transferring from facilities and equipment to operations.

TERMINAL DOPPLER WEATHER RADAR SYSTEM

Mr. CARR. You estimate that 25 terminal doppler weather radar systems will be delivered by the end of fiscal year 1994 and 47. the entire program, by the end of fiscal year 1995.

However, according to your justifications, you only estimate six commissioned by the end of fiscal year 1994, and no additional ones commissioned by the end of fiscal year 1995. What is the problem holding up the installation of these critical safety systems?

[The information follows:]

At this time 10 terminal doppler weather radar systems have been delivered. By the end of fiscal year 1995, we expect to commission 30 of 34 delivered terminal doppler weather radars (TDWRs). The original delivery schedule was stretched out due to site acquisition problems. These problems include environmental issues, real estate procurement issues, and some public opposition.

Mr. CARR. If there is a lot of site work remaining for these systems, why are you only requesting \$400,000 for that purpose in fiscal year 1995?

[The information follows:]

Site costs refer to land acquisition and site preparation activities. These activities are accomplished by the regions prior to the start of site construction. \$8,400,000 has been provided for these regional activities in prior years. The \$400,000 is the

last funding required for completion of these regional activities. Site construction costs are included under the TDWR prime cost element.

GROUND STATION SATELLITE SYSTEMS

Mr. CARR. What are the "ground station satellite systems" listed on page 62 of the justifications, and how were the specific locations determined?

[The information follows:]

Ground Satellite Systems are components of the FAA's Wide Area Augmentation System (WAAS), a system that will augment GPS in the areas of integrity, accuracy, and reliability/availability for sole-means use in all phases of flight through precision approaches. The sites listed are Wide Area Master Stations (WMS's) and Wide Area Reference Stations (WRS's). A linked network of WRS's will collect GPS signal data across all of the NAS locations. The WRS's are linked to the WMS's which will use the collected data to compute integrity and accuracy corrections. Specialized software will accept the GPS data and compute integrity by separating the corrections into three components: ionosphere, clock and ephemeris errors (satellite position errors).

Virtually all of the Ground Station Satellite sites will be located on the grounds of the FAA's existing en route centers. The Palmdale, California and Nashua, New Hampshire sites are WMS's and are to be installed first. Per the FAA's WAAS fielding plan, the WRS's will be fielded from the East Coast to the West Coast for efficiency and lower contractor costs.

DOD BASE CLOSURES

Mr. CARR. On page 71, you are requesting \$2,150,000 for evaluation and transition planning for DOD base closures. How was this amount calculated?

[The information follows:]

Costs were calculated based on regional estimates and costs of previous studies. The \$2,150,000 request is for:

Castle AFB:	
Maintenance training	\$100,000
Leased telecommunications	292,000
KI Sawyer AFB:	
Maintenance training	100,000
Airspace/radar/communications study	100,000
Leased telecommunications	50,000
Homestead AFB:	
Evaluation of rebuild	50,000
MCAS El Toro:	
Obstruction evaluation study	25,000
Communications/navaids site surveys	50,000
NAS Cecil Field:	
Radar siting analysis	50,000
Maintenance training	100,000
NAS Agana:	
Human resources management plan	25,000
Tower communications survey	100,000
Operations	500,000
NAS Glenview:	
Maintenance training	100,000
Travel	300,000
Site surveys, siting analyses, communications/radar/navaids analyses of fiscal year 95 list to be announced	208,000
Total	2,150,000

PCS MOVES

Mr. CARR. Please provide a breakdown, by budget activity, showing the numbers and budgetary resources for PCS moves required

due to return rights and those for discretionary PCS moves, for fiscal years 1994 and 1995.

[The information follows:]

PCS MOVES

FY 94*

	Required		Discretionary	
	# of Moves	Dollars	# of Moves	Dollars
Operation of Traffic Control System	40	1,767	28	1,238
NAS Logistics Support	0	0	1	28
Maintenance of Traffic Control System				
Leased Telecommunications Services	0	0	0	0
Aviation Regulation and Certification				
Aviation Standards				
Civil Aviation Security	26	900	0	0
NAS Design and Management	0	0	0	0
Administration of Airports			1	30
Direction, Staff & Supporting Services	1	4.2	2	223.8
Human Resource Management				
Headquarters Administration				
TOTAL, OPERATIONS	67	2,671	32	1,520

FY 95

	Required		Discretionary	
	# of Moves	Dollars	# of Moves	Dollars
	75	3,532	95	4,473
	0	0	1	28
	0	0	0	0
	26	900	0	0
	0	0	0	0
	2	80	5	262
	1	5	3	345
	104	4,517	104	5,108

* FY 1994 PCS moves are significantly lower due in part to funding the buyouts.

FLIGHT STANDARDS STAFFING INCREASE

Mr. CARR. Your fiscal year 1995 request includes funding for an additional 201 aviation safety inspectors. Please provide a detailed statement indicating the need for these positions, and discuss the planned grade levels and locations of the positions.

[The information follows:]

The FAA request to fund an additional 201 aviation safety inspectors is based on a need to provide additional staff to meet existing and anticipated workloads, as based on current and forecast levels of activity and our aviation safety inspector staffing standards. These staffing standards measure the staff levels necessary, by option and specialty required to perform certification, surveillance, inspection, accident investigation, and aviation education and promotion work functions. Aviation safety inspectors certificate and provide oversight on air operators, such as air carriers, air agencies such as repair stations and pilot training schools, and designees, such as designated mechanic or pilot examiners. At the end of FY 1993, aviation safety inspector field staffing was 453 positions or 18 percent, less than the 2,641 positions needed according to our staffing standards. The difference between on-board employment and staffing standards requirements has been highlighted in GAO and OIG reports as one cause of problems and deficiencies in certification and surveillance programs. Most of the additional 201 inspectors will be hired at the GS-12 level. Some GS-11 and GS-9 hiring will occur also.

Currently the staffing standards are being run against current aviation industry environmental data to update total staffing requirements and to determine which locations should be given priority hiring authority for the 201 additional inspectors. Location of the additional personnel will be determined by option and specialty based on percentage of understaffing, current and anticipated aviation activity, and the capacity of the office to provide effective on-the-job training for trainees. Also, hiring priorities will be impacted by the availability of PCS funds to balance staffing between offices by moving aviation safety inspectors to offices that are understaffed from offices that are overstaffed.

The new inspectors will receive classroom and on-the-job training and will reach full productivity during FY 1997. As training on individual job tasks is completed, the new inspectors will perform surveillance on existing air carriers, repair stations, pilot training schools, and other air agencies and air operators. They will also work with experienced inspectors to certificate new air carrier, air agency, and air operator applicants. They will also assist in the on-going certification process for existing certificate holders. Backlogs of certificate applications have increased due to reduced levels of aviation safety inspection personnel, causing delays and additional costs to applicants and existing certificate holders alike. As new inspectors attain full productivity levels, the cost to industry of obtaining and maintaining certification will decrease. Also, the traveling public will benefit from increased levels of surveillance provided by the new inspectors.

Mr. CARR. On page 88, you are requesting an additional 40 "administrative/clerical" positions under aviation certification and regulation. Please provide a detailed statement indicating the need for these positions, and discuss the planned grade levels and locations of the positions.

[The information follows:]

The FAA request to hire an additional 40 field office administrative and clerical personnel is based on staffing standards requirements for work performed in support of field office aviation safety inspectors. At the end of FY 1993 onboard staffing was 380, or 63.3 percent of the staffing standard requirement of 600. Field office administrative and clerical personnel occupy positions such as computer specialists, performing functions in support of the Aviation Safety Analysis Systems (ASAS) in the office. Aviation Safety Assistant respond to inquiries from the aviation industry, answer telephone inquiries from the public, maintain technical case files, and process and issue certificates, and authorizations. Other clerical personnel are responsible for the preparation and distribution of aviation education announcements, distribution of test material to designated test examiners, typing and filing reports, completing time cards, and providing other administrative functions, including travel and logistical support to aviation safety inspectors. Evaluations of field office operations have concluded that without adequate clerical and administrative person-

nel, aviation safety inspectors must perform these functions, taking time away from their assigned certification, surveillance, and oversight responsibilities.

Most of the 40 additional clerical and administrative personnel will be hired at the GS-5, 6, and 7 levels. Locations will be determined at the same time the staffing management determinations are made for placement of the additional aviation safety inspectors. Locations will be determined based on the onboard percentage of staffing compared to the staffing standards requirements, office workload and complexity, and the ability of other Flight Standards facilities or FAA organizations to coordinate requirements for combined clerical and administrative support.

PCS MOVES

Mr. CARR. Please justify your request to increase funding for PCS moves for the flight standards program by 300 percent in fiscal year 1995, from \$1,000,000 to \$4,000,000.

[The information follows:]

PCS Funding for the Flight Standards program has declined from a high of \$6.7 million in FY 1990 to an all time low of \$1.0 million in FY 1994. Over the past several years, PCS funding has been reduced to cover mandatory, unfunded requirements such as general pay raises, locality pay raises, and increases in employee benefits. The reduced funding level for PCS's has negatively impacted the ability to move aviation safety inspectors between duty locations to keep pace with shifting work demands and to backfill for attrition. As a result, there are workforce imbalances, with resulting inefficiencies, at many Flight Standards District Field Offices. The requested PCS funding will allow us to begin to bring the current workforce in line with the workload.

AVIATION MEDICAL EXAMINERS USER FEES

Mr. CARR. On page 100, you indicate that the Congressional direction that aviation medical examiners be charged reasonable user fees, pursuant to a finding of the Inspector General, is being held up pending a determination by the General Counsel of whether rulemaking action is required. Why do you believe rulemaking might be required, and did the FAA suggest that in its response to the IG report?

[The information follows:]

31 USC 9701, Fees and Charges for Government Services and Things of Value, requires that an agency establish a fair fee and set rules for cost recovery. Case law has made it clear that a Notice and Comment rulemaking under the Administrative Procedures Act is required in such circumstances. The FAA did not suggest the need for such rulemaking in its response to the IG report. The requirement or non-requirement for rulemaking did not seem pertinent to the basic decision to charge user fees.

RECORDS SERVICING AND ANALYSIS ACTIVITY

Mr. CARR. Has the FAA considered contracting out its records servicing and analysis activity under "aviation standards"?

[The information follows:]

The Civil Aviation Registry has responsibility for the Records Servicing and Analysis function under the Office of Aviation System Standards. The current workforce consists of approximately two-thirds FAA personnel and one-third contract support personnel. Contract personnel perform a variety of lower-level clerical duties in a more cost-effective manner than could be performed by FAA personnel. Consideration has been given to contracting out the entire records servicing and analysis function, but because aircraft records are specified as public records by the Federal Aviation Act and the remaining documents are maintained as public records, the function is considered inherently governmental.

REPROGRAMMING OF FLIGHT INSPECTION FLIGHT HOUR FUNDING

Mr. CARR. In fiscal year 1994, the Congress added \$2,500,000 for additional flight inspection flight hours. In this year's budget, you actually show a decline in flight hours in fiscal year 1994 (page 108), and say that you reprogrammed these funds since, in your view, "the flight inspection program base was at an adequate level" (page 116).

This is only one of several cases where the FAA apparently ignored the Appropriations Committee's funding directions last year. Is there any explanation for this?

Does the FAA plan to submit a reprogramming proposal prior to actually implementing these funding changes?

[The information follows:]

Initially, we did reprogram these funds to help cover upwards of \$80 million in unbudgeted locality pay costs that we had to absorb. We must cover all known liabilities. We have not ignored the funding direction. We are in the process of restoring these funds and will complete this process very shortly.

FLIGHT INSPECTION AIRCRAFT: O&M EXPENSES

Mr. CARR. On page 114, you are requesting an additional \$500,000 to operate and maintain new flight inspection aircraft. However, I don't see a deduction from your base for the O&M expenses of the aircraft which crashed last year.

If you are adding funds for new aircraft, shouldn't you also be subtracting funds for aircraft no longer in the inventory?

[The information follows:]

Resource requirements for the flight program are calculated based upon the number of flight hours and the distribution of hours by aircraft type. The crash of a BE-300, one of the newest and most fuel efficient aircraft in the flight inspection fleet, necessitates other aircraft being flown more hours than planned to offset the loss. A deduction from the base would be inappropriate because the flight hours do not decrease and the redistributed hours are on aircraft which are at least as expensive to operate and maintain.

AIRCRAFT O&M COSTS—OLD AIRCRAFT

Mr. CARR. I thought the main reason for new flight inspection aircraft was to avoid the excessive O&M costs of the aging current fleet. Given this, why aren't you retiring aircraft as the new ones come into the inventory?

[The information follows:]

We are retiring aircraft as new ones come into the inventory. The first delivery of new flight inspection aircraft is scheduled for FY 1995. Deliveries will continue through FY 1999. There is a short overlap between delivery of new aircraft and disposition of old aircraft, however, all old aircraft will be systematically removed from the fleet as new aircraft are delivered. In FY 1992 eleven aircraft were removed from the flight inspection fleet with one of those aircraft being reassigned to RE&D. Two decommissionings are planned in FY 1994. It is our plan that all of the old aircraft will be retired from the flight inspection fleet by FY 1998.

CIVIL AVIATION SECURITY WORKLOAD ESTIMATES

Mr. CARR. Workload estimates for your civil aviation security mission in fiscal year 1995 are identical to your 1994 estimates, in every category. Why is this?

Did the FAA do any work to develop estimates for 1995?

[The information follows:]

The 1995 workload estimates were based on the civil aviation security program maintaining the same staffing level in fiscal year 1995 as in 1994. The FAA is currently reviewing and testing the manner in which future inspection activity will be conducted. As a result, future workload projections will be based on data derived from inspections and tests, as opposed to pre-established frequencies based solely on the resources available.

AAS LAB UTILITY COSTS

Mr. CARR. Given the uncertain state of the AAS program, how firm is your estimate of an additional \$500,000 in utilities costs to run the AAS lab at the Tech Center, shown on page 130?

[The information follows:]

The \$500,000 is required to support the purchase and payment of electrical power and natural gas at the Technical Center including the AAS Laboratory. This increase would encompass all the facilities at the Center including the AAS Laboratory and will fund projected rate increases from the utility companies as well as the projected growth on the Center. A significant part of the electrical growth will occur in the AAS Laboratory and in particular the 40,000 square foot test bed portion of the laboratory. Although the AAS software is experiencing delays, the AAS hardware and interim software has been and is projected to be installed in the test bed area on schedule. The FAA is utilizing the hardware and interim software to develop test procedures and to conduct early operational evaluations.

OFFICE OF THE CHIEF COUNSEL STAFFING

Mr. CARR. Last year's President's budget requested 337 positions for the Office of Chief Counsel. In the Appropriations Conference, you were directed to cut 11 positions, resulting in an approved level of 326. Why, then, do you show 337 positions in the fiscal year 1994 column of the 1995 justifications (page 146)?

[The information follows:]

It was a technical oversight for us not to reduce FTP positions in the Office of the Chief Counsel (AGC) in the Direction, Staff, and Supporting Services activity. As you will note, AGC FTP staffing will go from 303 at the end of FY 1993 to 286 at the end of FY 1994, a reduction of 17. Staffing will be reduced an additional 9 in FY 1995. We have had a hiring freeze since the fall of FY 1993. AGC has not hired any new employees, with the exception of the Chief Counsel, in over 2 years. In accordance with Committee direction and the National Performance Review, we intend to continue to streamline staffing in AGC.

AIRWAY FACILITIES ENROLLMENTS

Mr. CARR. On page 155, why are you projecting a 30 percent increase in enrollments and student days to train airway facilities personnel in fiscal year 1995?

[The information follows:]

Increased enrollments and dollars have been requested in the FY 1995 budget to provide training on the maintenance of new equipment being deployed as part of the Capital Investment Plan (CIP). Among the urgent training needs associated with the CIP implementation are 175 enrollments on the Electronic Data Processing System, 70 enrollments on the Air Route Surveillance System Four, nearly 200 students for MODE S, and 325 enrollments associated with the maintenance of the Voice Switch Control System (VSCS). Although capital expenditures for the CIP modernization fall under the facilities and equipment (F&E) appropriation, the costs of operating and maintaining the new systems, including training, is covered by the operations appropriations.

CENTER FOR MANAGEMENT DEVELOPMENT

Mr. CARR. What is the total annual cost to operate and maintain the Center for Management Development, and how does that break down?

[The information follows:]

[In thousands of dollars]

	Fiscal year—	
	1994	1995
Compensation & benefits	600	550
Facility	3,547	2,647
Instructional staff	2,653	1,677
Training travel	3,255	2,787
Total	10,055	7,661

HEADQUARTERS ADMINISTRATION FUNDING LEVEL

Mr. CARR. Last year's conference report approved a funding level of \$47,510,000 for headquarters administration. Your 1995 justifications show \$48,233,000, a 1.5 percent increase. What accounts for the difference above the congressionally approved level?

[The information follows:]

The fiscal year 1994 operational level for the Headquarters Administration (HA) activity is above the Conference mark for several reasons.

Last year's House report recommended reductions in the HA activity staffing of 62 FTP positions and \$5,020,000. During Conference, 10 of these positions in the Office of Chief Counsel (AGC), as well as funding for them were restored. The House committee also cut \$95,000 in printing costs.

Among the positions the Committee reduced were some in AGC, and the Office of Information Technology (AIT). However, all of AGC's and one half of AIT's staff are paid out of the Direction, Staff & Supporting Services (DS&SS) activity. These costs had to be reprogrammed to the HA activity. In addition, the full cost of the FY 1994 locality pay adjustment needed to be funded.

In addition, FAA management made a decision in FY 1994 to decentralize printing costs in an effort to ensure more accountability over costs. Base transfers of printing costs from the DS&SS activity were made to all organizations within FAA.

These reprogrammings and base transfers were offset in large part by contractual studies reductions assumed in the conference report.

As a result of these changes, the HA activity is showing a \$2.4 million reduction from FY 1993 to FY 1994. The activity is reduced a further \$1.3 million in FY 1995. Personnel compensation and benefits costs remain flat in FY 1994 after savings from staff reductions are offset by the cost of the pay raise and other pay adjustments. Non pay costs have been reduced by 20% from FY 1993 to FY 1994.

FAA is working to reduce overhead staff and costs in accordance with Congressional intent and the direction of the National Performance Review.

HEADQUARTERS ADMINISTRATION STAFFING

Mr. CARR. Last year's conference report reduced 52 positions under "headquarters administration." Please provide a listing of the positions eliminated, by office, and explain any variances from the allocations directed by Congress.

Last year's House report recommended reductions in the Headquarters Administration (HA) activity staffing of 62 FTP positions. During conference, 10 of these positions in the Office of Chief Counsel (AGC), as well as funding for them were restored.

Among the positions the Committee reduced were some in AGC, and the Office of Information Technology (AIT). However, all of AGC's, and one half of AIT's staff are paid out of the Direction Staff & Supporting Services (DS&SS) activity. Of the 52 positions, 11 AGC positions, and 8 AIT positions actually reside in the DS&SS activity. The actual reduction in the HA activity totals 33.

Current authorized position levels for the identified programs are:

	Fiscal year 1994	
	Recommended	Current
Administrators office	51	51
Chief counsel	145	¹ n/a
Civil rights	15	15
Government affairs	10	13
Information technology	95	² 55
Public affairs	25	35
Accounting	70	³ 42
Budget	60	58

¹ All AGC staff are funded out of the DS&SS activity. Though authorized positions remain the same in fiscal year 1994 as the request, onboard staff is expected to decline by 17 during fiscal year 1994.

² AIT had a total of 110 positions in the fiscal year 1994 request: 55 FTP positions in the HA activity and 55 FTP positions in the DS&SS activity. The fiscal year 1995 request assumes a reduction of 3 FTP in fiscal year 1994 to 107 with a further reduction of 3 in FY 1995 for a total of 104.

³ Accounting had a total of 75 positions in the fiscal year 1994 request: 30 FTP positions in the DS&SS activity and 45 FTP positions in the HA activity. The fiscal year 1995 request assumes a reduction of 3 FTP in fiscal year 1994 and an additional reduction of 4 in fiscal year 1995 for a total of 68.

In accordance with Committee intent, the HA activity staffing is being reduced. Authorized positions have been reduced as directed by the Committee. However, to achieve the reductions directed by the Committee, some offices would have been required to conduct Reductions in Force (RIF's). Since RIF's are extremely expensive and disruptive, FAA has decided not to reduce staffing through that means. Rather, FAA has imposed a hiring freeze on all administrative staff and is depending on attrition to meet the reduced targets.

From FY 1993 to FY 1994, FTP onboard staff in the HA activity will come down 26, a 5% reduction. An additional reduction of 10 is assumed in FY 1995. The agency is committed to further reducing staffing in these areas through FY 1990.

Mr. CARR. How were you able to reduce these 52 positions and still show a 39 position increase over the previous year, from 508 to 549?

[The information follows:]

Authorized FTP positions have been reduced in the Headquarters Administration (HA) activity. The increase from 508 to 549 is in FTE. The increase is a result of base transfers of staff from NAS Logistics Support and NAS Design and Management in FY 1994. In fact, staffing is coming down in the HA activity. Onboard FTP staffing is going from 529 at the end of FY 1993 to 503 at the end of FY 1994, a reduction of 26. Staffing will come down an additional 10 in FY 1995. The agency is committed to further reduction in the HA activity between now and FY 1999.

MAINTENANCE TECHNICIAN WORK HOURS

Mr. CARR. The FAA has been maintaining the air traffic control system with a maintenance technician work force that is both smaller than the one prescribed by the staffing standards and less experienced. In the past, both a former FAA Administrator and the General Accounting Office have raised concerns about the adequacy of these staffing standards.

Despite this concern, a recent Aviation Daily article said that because of budget concerns FAA is cutting back on the work hours of maintenance technicians at air traffic control facilities, a move that could impact safety and capacity of the air traffic system. Has FAA reassessed its staffing standards for maintenance technicians and, if so, what are the results?

If not, does FAA plan to assess them?

[The information follows:]

Yes, the FAA has reassessed its staffing standard system to come up with ways to do more with less without compromising NAS safety and efficiency. This assessment has resulted in the FAA taking a hard look at the amount of work specified in our maintenance orders. We are rapidly changing our maintenance orders to reflect improvements brought about by advancing technology as well as much smarter

ways of keeping the system operating at full capacity. Due to these changes, we anticipate that the number of maintenance actions will be reduced by 25 percent in FY 1995 and the staffing standard will be reduced accordingly. Also, work has begun on evolving the maintenance centers into a NAS infrastructure Management System (NIMS) concept of maintenance operations. This system will enable the FAA to provide the same or better service at significantly lower staffing levels in the field maintenance workforce.

MAINTENANCE TECHNICIANS WORK HOURS

Mr. CARR. Is FAA cutting back on maintenance technician hours at air traffic facilities, as discussed in the Aviation Daily article, and if so, one, how did FAA determine which facilities warranted such reductions particularly if the staffing standards have not been reassessed, and two, what problems has FAA experienced since the cutback?

[The information follows:]

Staffing standards provide for shift augmentation for the sole purpose of supporting watchstanding maintenance coverage at critical NAS facilities. Because of improved facility reliability and remote maintenance monitoring and control capabilities, we have been able to reduce 24-hour on-site maintenance hours. In addition, we have established a centralized AF presence, which is not currently supported by staffing standards at maintenance control centers. We are aware of but a few minor problems as a result of these cut backs in on-site maintenance hours.

MAINTENANCE WORK HOURS

Mr. CARR. How does FAA determine whether safety is affected by a reduction in maintenance work hours?

[The information follows:]

A reduction in maintenance work hours (coverage) at National Airspace System (NAS) facilities is always preceded by risk analysis to determine the impact on continued facility service. In most cases, reductions in maintenance work hours occur after upgrades or changes that result in improvements to facility reliability/availability. These may include more "state of the art" technologies, improvements to redundancy, and remote monitoring/control abilities.

Reductions in maintenance work hours are coordinated with affected Air Traffic representatives prior to implementation. In most cases, even though work hours are reduced, provisions are made for immediate call-back response if required.

MAINTENANCE TECHNICIAN COVERAGE

Mr. CARR. If budget reductions continue over the next few years, has FAA developed a plan on the facilities that may be affected by a reduction of maintenance technician coverage?

[The information follows:]

Yes. Airway Facilities (AF) has been performing strategic planning for two years and has published two strategic plans which identified a number of strategies designed to change the way AF does business. One of the major strategies is to operate and manage the National Airspace System (NAS) infrastructure through centralized operations control centers (OCCs) which would allow for remote diagnostics and monitoring. A number of actions have to occur before AF can operate using command and control facilities, however. One of those actions is to perform cost benefit analyses on the locations and kinds of facilities which need to be established or defined both on an interim basis and when the OCCs are fully operational.

AF is in the process of defining its OCC needs and locations, as well as developing a draft realignment plan which would ultimately consolidate the 79 sector offices now operational into about half that number. This draft plan will ensure the continued safe operations of the NAS, but will provide for more economies and efficiencies in the administrative and management areas both in response to changing needs and to the expectation of budget reductions. AF began planning to accommodate initiatives reflected in the National Performance Review as part of its 2nd cycle of

strategic planning, always ensuring, however, that NAS coverage would not be degraded, and that any reduction in personnel would occur through gradual attrition.

Mr. CARR. If a plan was developed, was it done with full consideration of the anticipated traffic growth at each location and with input from local facility personnel, including air traffic control?

[The information follows:]

Yes. The process model Airway Facilities (AF) uses for strategic planning includes a step for obtaining customer and supplier input to the initiatives. AF has held numerous meetings both internally and externally to determine the support and concerns of its stakeholders and has been incorporating that input into its planning process. In determining where to locate Operations Control Centers, the methodology takes into account air traffic needs and anticipated growth.

MAINTENANCE WORK FORCE DOWNSIZING

Mr. CARR. Last year, the FAA provided the Congress with its justification for a limited consolidation strategy of its air traffic control facilities. The agency had expected to reduce its maintenance work force because of several factors including: (1) Use of remote monitoring equipment, (2). use of more reliable hardware, and (3) use of equipment manufacturer maintenance following installation.

Because of the slow introduction of new equipment, however, the parallel operation of new and old equipment is likely to produce a "bubble" in maintenance work force requirements. Furthermore, the maintenance work force includes many individuals eligible for retirement.

What implications will the limited consolidation strategy have on plans to downsize the maintenance work force?

[The information follows:]

The agency has reduced its maintenance work force largely by replacing tube type with more reliable solid state equipment, using equipment manufacturer maintenance following installation, and using some of the planned remote monitoring capabilities. The limited consolidation scenario will require slightly less automation workload than is required today. By reducing only management and administrative support positions, and by sustaining our safety-related maintenance work force, we plan to accommodate retirements and at the same time retain capability for handling any "bubble" requirements which may be caused by slow introduction of new equipment.

PAY DEMONSTRATION PROGRAM

Mr. CARR. What were the lessons learned from the Pay Demonstration Program?

[The information follows:]

The Pay Demonstration Project evaluation prepared by OPM indicates that the project has a slight positive effect on recruitment and retention at the covered facilities; most covered facilities experienced increased staffing levels, reduced turnover, and improved experience levels. The evaluation also noted that Government-wide low turnover and a leveling of aviation activity due to changes in economic conditions contributed to the improved staffing at covered facilities. Implementation of new personnel authorities, such as geographic pay differentials, also contributed to the staffing improvements. However, there were also numerous complaints about inequitable treatment of employees in noncovered positions and occupations, and the project had a cost of over \$100 million.

Currently there are few recruitment/retention problems. For example, 75 applications were received for the last recruitment at O'Hare TRACON, despite the scheduled end of the Pay Demonstration Project. Also, a large applicant pool is available from various sources: Over 4,800 former controllers have requested reinstatement; 150 available College Training Initiative graduates; 250 controllers available for placement annually as Level I towers are contracted out.

New pay flexibilities are now available to address recruitment/retention problems (for instance, the 8% interim geographic adjustments, locality pay, and recruitment/retention bonuses).

Given the significant cost of the project, the changes in staffing levels and personnel authorities that have occurred since the project's inception, and the large applicant pool available, the project should not be extended beyond its statutory termination date.

Mr. CARR. Are there other avenues such as rehiring former PATCO, controllers that would ensure adequate staffing at these key facilities in light of terminating the pay demonstration program?

[The information follows:]

We believe that adequate levels of staffing can be maintained at former pay demonstration sites without the need for special programs.

SAFETY PERFORMANCE ANALYSIS SYSTEM (SPAS)

Mr. CARR. For several years, the FAA has been trying to develop criteria to target airline inspections to high risk conditions, in order to help the agency determine the best use of its limited inspector work force. To accomplish this, FAA is developing the safety performance analysis subsystem (SPAS). What is the current status of SPAS?

[The information follows:]

Currently, the SPAS is designed to track the performance of certificate holders in four areas; air operators, air agencies, aircraft type, and air personnel. For each component, an expert panel has been/will be organized. These panels consist of expert aviation safety inspectors. To date, two of the four panels have been established; air operators and air agencies.

In CY-1993, the SPAS prototype was installed and evaluated in nine field offices. Field inspectors will continue to test and evaluate performance indicators as they are produced. By the end of FY-1994, initial air agency indicators will be installed. The aircraft type expert panel will be convened in FY-1995, and the fourth panel to derive air personnel indicators will be convened in FY-1996.

The first operational version of the SPAS will be implemented in FY-1995 to principal air carrier inspectors and to a limited number of users in 30 field locations. By FY-1997, the SPAS will be available for all FAA inspectors.

Mr. CARR. What are the telecommunication requirements to implement SPAS and their estimated costs?

[The information follows:]

The FAA plans a phased deployment of the SPAS. The SPAS I will be released to a limited community of users in FY-1995 and Phase II will be released to all inspectors in FY-1997. Telecommunications requirements will reflect the phased implementation. The FAA is evaluating various telecommunications capabilities ranging from existing in-house sources to the new ADTN2000. Total FY-1995 costs for the telecommunications support for SPAS are included in the existing SPAS funding request.

Mr. CARR. Does FAA plan to include the results of foreign carrier inspections in SPAS, and if not, why not?

[The information follows:]

The inclusion of foreign air carrier inspections in SPAS is still under review. FAA will have an expert panel determine if there is enough data on foreign operator inspections to provide significant trends. Even if foreign air carriers are not trendable in and of themselves, the current indicators defined for domestic air carriers may be useful as benchmarks for the analysis of foreign carriers. Additionally, the aircraft component of the SPAS will be developed in 1995 and will provide useful indicators for the analysis of foreign air carriers.

FLIGHT PLAN FOR TRAINING

Mr. CARR. In fiscal year 1995, FAA proposes to spend about \$106.8 million to support about 28,000 training enrollments, a decrease of over \$16 million, or 13 percent, from fiscal year 1994. In addition, FAA proposes to spend about \$6.9 million 34 percent less than fiscal year 1994 for flight plan for training initiatives to correct longstanding deficiencies.

Overall, what improvements has FAA made as a result of funding flight plan projects?

[The information follows:]

Substantial progress has been made on each Flight Plan initiative. Resources have not been available at the planned levels, so most projects are behind their original schedule Accomplishments to date include:

Developed and implemented new Air Traffic On-the-Job (OJT) training courses.
Streamlined the hiring process for Air Traffic Controller and Aviation Safety Inspectors.

Developed and implemented a new pre-training screen for Air Traffic Controllers.
Air Traffic curricula redesign underway ("Train to Success" philosophy).

Academy instructor recruitment/retention study implemented.

Airway Facilities curricula modernization underway.

Pilot programs initiated to off-load costs of training controllers (AT) and technicians (AF) to private and academic sectors.

Strategic Plan for Management Development implemented.

Established the Airway Systems Specialist occupation for Airway Facilities.

Mr. CARR. What is the status of each Flight Plan project and how much has each project cost?

[The information follows:]

FLIGHT PLAN FOR TRAINING

	1991	1992	1993	1994	1995
Curricula redesign	\$5,210	\$3,524	\$8,213	\$6,158	\$4,645
On the job training	520	303	770	0	0
Management development strategic plan	2,704	1,766	1,008	639	455
Academic and industrial ties	4,411	3,581	2,643	208	199
Office of training and higher education	1,355	1,129	1,179	1,135	1,156
Recruitment	1,929	2,303	2,281	1,205	142
Air traffic screen	2,893	2,660	1,981	1,084	285
Total	19,022	15,266	18,075	10,429	6,882

CENTRALIZED TRAINING

Mr. CARR. To what extent does the fiscal year 1995 budget request for centralized training reflect the service organizations' assessment of training needs?

[The information follows:]

The fiscal year 1995 Centralized Training budget was developed from line requirements. The Executive Committee for Technical Training Oversight (ECTTO), composed of executive-level members representing all line organizations, provides continuing oversight of technical training programming. ECTTO has adopted a "True Needs" concept which assures that every training requirement is subjected to intense scrutiny before it is funded. Line organizations also provide direct and continuing input to the programming of management training.

CIVIL AVIATION SECURITY TRAINING

Mr. CARR. What steps is FAA taking to ensure the security work force is properly trained and has the appropriate level of experience?

[The information follows:]

The FAA's 1990 Flight Plan for Training included an initiative to develop a curriculum for special agents in the security work force. The FAA completed a comprehensive job task analysis of special agent positions and has used this analysis to develop a three-phase curriculum. It begins with an employee orientation guide and self-study modules that introduce the new employees to Civil Aviation Security programs during their first six months on the job. The second phase is a three-week basic core course at the FAA Academy, from which they graduate as Special Agents. The third stage is supervised on-the-job training (OJT); returning from the Academy to their work locations, the new special agents are paired with experienced employees who are both mentors and supervisors. The OJT augmented with formal classroom training continues until agents reach journeyman level. The FAA also developed a Master Plan for Training Development and a Career Pathing Handbook, which outline training and work experience necessary to progress to journeyman level and to specialized occupations such as Federal Security Manager or Hazardous Materials Coordinator.

CONSOLIDATION OF SECURITY FIELD OFFICES

Mr. CARR. Has FAA assessed the possibility of consolidating its security field offices and reducing the number of supervisory and overhead positions without impacting the number of field inspectors? If so, what are the results?

[The information follows:]

Civil Aviation Security, is using the buy-out/early-out authority, in conjunction with analysis of direct tasks, supervision, and management, to reduce the number of supervisory and overhead positions. The FAA strategies to reorganize and streamline will be more fully developed during the next three to six months. Consolidation of regional offices will be considered in developing the streamline strategy.

MOVING BEYOND "CHECKLIST" MENTALITY

Mr. CARR. What steps is FAA taking to ensure that its security inspectors move beyond inspections and a "checklist" mentality to become problem solvers?

[The information follows:]

During the second quarter of fiscal year 1994, FAA implemented a revised field inspection program that targets selected areas of program emphasis and maintains the focus of the security workforce on identified problem areas until they are resolved. This process guides security inspectors and managers away from a "checklist" mentality by requiring them to determine the root cause of a security problem and to take the necessary steps to correct the problem. FAA first applied this approach to access systems at U.S. airports. FAA is refining the process for subsequent application to other program areas. In addition the inspection process is being revised to yield more detailed, comprehensive data and more effective detection of vulnerabilities and necessary corrective actions. Consultation and problem solving sessions with air carriers, airports, and their employees are important components of the new, focused approach to security.

ALLOCATING SECURITY RESOURCES

Mr. CARR. What steps is FAA taking to bring a more analytical approach to the manner in which it allocates security resources and determines the frequency of airport inspections?

[The information follows:]

Beginning in fiscal year 1994, FAA began re-structuring its national aviation security inspection process to quantify the cost of its programs and to establish acceptable levels of performance of regulated parties. The frequency of future inspections and testing activities will be driven by the results of the inspections and tests, and the success with which the aviation industry is able to address the problems identified in the inspections and tests. Data derived from focused inspections of industry will guide the deployment of resources. This structured approach, now underway,

will afford program managers added flexibility to shift resources and emphasis from program to program based on identifiable needs or threats.

FOREIGN AIR CARRIER SECURITY PROGRAM

Mr. CARR. To what extent does FAA inspect foreign airlines to ensure that no significant security threat exists for U.S. citizens traveling on such aircraft?

[The information follows:]

Foreign airlines subject to Federal Aviation Regulations, Part 129, operating to and from the United States, are required to submit programs acceptable to the Federal Aviation Administration. FAA's Civil Aviation Security force evaluates the measures of foreign airlines operating at airports in the United States and their last points of departure to the United States to ensure the security programs are fully implemented.

NATIONAL ROUTE PROGRAM

Mr. CARR. In January 1993, the FAA began allowing aircraft operators of U.S. flights of at least 1,500 nautical miles, flown at or above 39,000 feet, to select and use the most efficient direct route in place of a published IFR route. Approval of these routes was to be based, however, upon controller approval.

What has been the experience to date under this rule, and what is your estimate of fuel saved?

[The information follows:]

On April 22, 1992, the FAA published Advisory Circular 90-91, which implemented the National Route Program (NRP). The results of this program have been extremely successful. The Air Transport Association of America reported that its member carriers saved an estimated \$6.62 million dollars during 1992. Savings of as much \$10 million dollars are expected for 1993, although these data are not currently available. The program initially allowed operators the opportunity to operate under the NRP for approximately 300 daily flights. In December 1993 the FAA expanded the NRP to include an additional 20 city pairs. This has increased the eligible flights to approximately 500 per day which should result in additional savings for the user. The FAA is continuing to work with the user community to identify opportunities to further expand this program.

NAS LOGISTICS SUPPORT FOURTH QUARTER OBLIGATIONS

Mr. CARR. In fiscal year 1993, the FAA obligated 26.37 percent of its operations appropriation in the fourth quarter. NAS logistics support had the highest fourth quarter obligational activity of all budget activities, at 31.4 percent. Why is this budget activity so much slower than the account-wide average?

[The information follows:]

In fiscal year 1993, the FAA as a whole was approximately 76 percent personnel compensation and benefits (PC&B) related, while the NAS Logistics Support (NLS) activity was approximately 38 percent PC&B. This is significant because PC&B obligations accrue relatively evenly over the fiscal year. Conversely, the NLS activity accrues 62 percent of its obligations in other objects, primarily contractual services and supplies. These types of transactions require long lead-times and are planned to occur late in the fiscal year to compensate for this anomaly.

Additionally, during the last quarter of fiscal year 1993, the Agency was able to provide an additional \$4 million to the FAA Logistics Center for NAS supply support. These funds were applied to prepositioned high priority requisitions which were obligated in the fourth quarter.

CONTROLLER STAFFING REQUIREMENTS

Mr. CARR. In its April 1994 report to the Congress on controller staffing requirements, the FAA confirms that its regions use dif-

ferent methods for analyzing the controller operational environment and managing the staffing ceilings provided by headquarters. As the report states, "headquarters allocates each region an annual aggregate CWF target for the year, which each region distributes in its own way." What actions is the FAA taking to standardize the methods used by your field offices in this regard?

[The information follows:]

The staffing standard forecasts are intended to be used by regions as a guide for distributing positions. Regions have the flexibility to distribute staffing in a manner that reflects their unique requirements. In most cases, regional authorized staffing is within 10 percent of the number determined by the staffing standard. This method has been successful in allocating resources where they are needed most.

AIR TRAFFIC CONTROLLER STAFFING REQUIREMENTS

Mr. CARR. This report notes that the traffic activity forecast model is updated in the spring of each year, and serves as a basis for controller staffing requirements. What traffic activity forecast was used in development of the fiscal year 1995 budget request?

[The information follows:]

The fiscal year 1995 budget request was based on the fiscal year 1993 forecast which was based upon fiscal year 1992 actual traffic activity.

STAFFING STANDARDS REVIEW COMMITTEE

Mr. CARR. What is the charter and schedule for the Staffing Standards Review Committee, and what products are they expected to deliver?

[The information follows:]

The Staffing Standards Review Committee, which is chaired by the FAA Deputy Administrator and/or Executive Director for Systems Operations, has been established at the associate/assistant administrator level to determine the adequacy of current staffing standards, changes which may improve their usefulness, and whether or not the staffing standards are meeting agency goals and objectives. The committee has completed the review of the purpose and role of agency standards and developed specific objectives for the agency's staffing standards program. The following issues will also be addressed:

- Determine if standards are used consistently throughout the agency

- Determine reasons for differences between staffing standards and on-board staffing

- Review staffing standards now in use to assess the appropriateness of the methodologies, underlying assumptions, and workload drivers and assure that these are consistent throughout the agency standards

- Determine if standards accurately reflect the current and future work of specific program areas

This effort will include input from independent experts in the field of workload measurement and in-depth reviews of specific program area staffing standards. Currently, in-depth reviews are underway for the air traffic and airway facilities program areas.

The review started this fiscal year, with the bulk of the work to be accomplished in fiscal year 1994 and fiscal year 1995. The anticipated completion of the effort for air traffic and airway facilities staffing standards is fiscal year 1996.

AIRCRAFT N-1 UTILIZATION

Mr. CARR. Please provide for the record data on the number and purposes of trips, number of days and hours flown, and average duration of each trip flown using aircraft N-1.

[The information follows:]

The Gulfstream IV (N-1) was flown on 179 trips, in 168 days, from January 1, 1993, through December 31, 1993. The average duration was 3.9 hours per trip. A breakout of the hours and number of trips, by purpose of flight, follows:

Purpose of flight	Trips	Flight-hours
Transportation	33	175.0
Training	43	160.4
Currency	41	144.1
Evaluation	30	97.6
Research & development	20	93.9
Other	12	20.9
Total	179	691.9

SUNDAY PREMIUM PAY

Mr. CARR. Please provide for the record a copy of OPM's August 26, 1993 memorandum regarding "change in policy on Sunday Premium Pay," with the enclosure, FPM letter 550-579.

[The information follows:]

The August 26, 1993, Office of Personnel Management memorandum regarding Sunday Premium pay, with enclosure, follows:



United States
Office of
Personnel Management

Washington, D C. 20415-0001

In Reply, Refer to

How Reference

August 26, 1993

MEMORANDUM FOR DIRECTORS OF PERSONNEL

FROM:

Barbara L. Fiss
BARBARA L. FISS
ASSISTANT DIRECTOR
FOR COMPENSATION POLICY

SUBJECT: Change in Policy on Sunday Premium Pay

We are sending you an advance copy of FPM Letter 550-79, August 20, 1993 (Sunday Premium Pay for Periods of Paid Leave and Excused Absence), to help you implement a policy change as soon as possible. This letter reflects the decision of the United States Court of Appeals for the Federal Circuit in Armitage, et al. v. United States (Fed. Cir. No. 92-5157, April 12, 1993).

Before the policy change, employees who took paid leave or were excused from duty on a Sunday lost Sunday premium pay for the period of absence. Under the policy change, agencies must pay Sunday premium pay to full-time employees who are regularly scheduled to work on a Sunday, but instead take paid leave or are excused from duty.

This change in policy is effective on the first day of the first pay period beginning on or after May 27, 1993. At a later date, OPM will provide information about processing claims for Sunday premium pay for periods prior to the first day of the first pay period beginning on or after May 27, 1993.

Please direct questions on this policy change to the Compensation Administration Division on (202) 606-2858.

Attachment

Office of Personnel Management

Federal Personnel Manual System

FPM Letter

FPM Letter 550-79

Published in advance
of incorporation in FPM

Chapter 550

RETAIN UNTIL SUPERSEDED

SUBJECT: Sunday Premium Pay for Periods of Paid
Leave and Excused AbsenceWashington, DC 20415
August 20, 1993

Heads of Departments and Independent Establishments:

SUMMARY

1. The purpose of this letter is to provide guidance to agencies on implementing the decision of the United States Court of Appeals for the Federal Circuit in Armitage, et al. v. United States (Fed. Cir. No. 92-5157, April 12, 1993) with regard to the payment of Sunday premium pay.

BACKGROUND

2. In the Armitage decision, the United States Court of Appeals for the Federal Circuit has affirmed the decision of the United States Claims Court on June 20, 1991, that the "leave with pay" statutes of title 5, United States Code, preclude any reduction in pay for employees who take annual or sick leave when they are regularly scheduled to work on Sundays. The court determined that such employees are entitled to Sunday premium pay for periods of authorized absence from work on paid leave. The court has made this determination despite the fact that 5 U.S.C. 5544 and 5 U.S.C. 5546(a) provide that an employee must perform regularly-scheduled work on Sunday in order to be entitled to Sunday premium pay.

3. The U.S. Solicitor General decided not to request a rehearing of the Armitage decision before the U.S. Court of Appeals or to appeal the decision to the U.S. Supreme Court. The decision on the merits of the case became final on May 27, 1993.

4. Under 5 U.S.C. 5546(a) and 5 CFR 550.171 for an "employee" as defined in 5 U.S.C. 5541, and under 5 U.S.C. 5544(a) and 5 CFR 532.509 for prevailing rate employees paid from appropriated funds, a full-time employee is entitled to pay at his or her rate of basic pay, plus premium pay at a rate equal to 25 percent of

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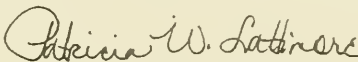
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FPM Letter 550-79 (2)

his or her rate of basic pay, for each hour of Sunday work which is not overtime work and which is not in excess of 8 hours for each regularly scheduled tour of duty that begins or ends on Sunday. Under 5 CFR 610.102(g), "regularly scheduled" work means work that is scheduled in advance of an administrative workweek under an agency's procedures for establishing workweeks in accordance with 5 CFR 610.111. Also, under 5 CFR 610.111(b), all work performed by an employee on a "first 40-hour tour of duty" within the first 40 hours during the administrative workweek is considered to be "regularly scheduled." Part-time employees and employees who work intermittently are not entitled to premium pay for Sunday work.

IMPLEMENTATION

5. The Office of Personnel Management has determined that while the Armitage decision specifically addresses annual leave under 5 U.S.C. 6303 and sick leave under 5 U.S.C. 6307, agencies must also pay Sunday premium pay to full-time employees when other types of paid leave are approved and taken in lieu of regularly scheduled nonovertime work on Sundays. This includes home leave and shore leave under 5 U.S.C. 6305, leave for jury or witness service under 5 U.S.C. 6322, military leave under 5 U.S.C. 6323, funeral leave under 5 U.S.C. 6326, and excused absences approved by agencies consistent with subchapter 11 of FPM Chapter 630.
6. Effective on the first day of the first pay period beginning on or after May 27, 1993, agencies must pay Sunday premium pay required by 5 U.S.C. 5546(a) or 5 U.S.C. 5544 (for up to 8 hours in any tour of duty, excluding overtime hours) to a full-time employee as defined in 5 U.S.C. 6301 who is regularly scheduled to work on Sunday, but who receives basic pay for a period of paid leave or excused absence during that tour of duty. This change in policy does not apply to nonappropriated fund employees of the Department of Defense or the U.S. Coast Guard.
7. OPM will provide information about processing claims for Sunday premium pay for periods prior to the first day of the first pay period beginning on or after May 27, 1993, at a later date.
8. An employee is not entitled to Sunday premium pay and is not otherwise affected by the Armitage decision when the employee does not take paid leave on a Sunday because the employee is in a nonpay status, is excused from a requirement to perform overtime work, performs no work on a holiday, takes compensatory time off, or uses credit hours under a flexible work schedule.



Patricia W. Lattimore
Acting Deputy Director

FAA—NATCA SUNDAY PAY SETTLEMENT

Mr. CARR. Please provide a copy of the FAA—NATCA settlement agreement on the issue of Sunday Premium Pay.

[The information follows:]

There were two agreements made between the FAA and NATCA on Sunday Premium Pay. The first was signed on September 29, 1993. The second was signed on December 9, 1993, and addressed some ambiguities found in the first agreement. Copies are attached.

SETTLEMENT AGREEMENT

This settlement agreement is made and entered into by and between the National Air Traffic Controllers Association (the Union or NATCA) and the U.S. Department of Transportation, Federal Aviation Administration (the Agency). The purpose of this agreement is to resolve with finality (1) the Union's November 20, 1992, grievance for back pay on behalf of all air traffic controllers who were regularly scheduled to work on Sunday and took paid leave on that day and did not receive premium pay (Grievance No. (NC) ALR-92-12-NAT-1), and (2) any individual grievances by bargaining unit members concerning the same issue that were filed under the parties' collective bargaining agreement.

In Armitage v. United States, No. 92-5157, (Fed. Cir. April 12, 1993), the court held that employees who are regularly scheduled to work on Sunday are entitled to premium pay for annual and sick leave used on that day. On August 26, 1993, the Office of Personnel Management further determined that such employees are entitled to premium pay for other types of paid leave and excused absences. The Agency complied with the prospective application of Armitage guidance by paying employees such premium pay beginning with pay period 93-17 (July 25, 1993).

In consideration of the premises and mutual promises herein contained, it is agreed as follows:

1. This settlement agreement covers and includes all GS-2152 employees in the NATCA bargaining unit on November 20, 1992,

and all GS-2152 employees in the NATCA bargaining unit¹ on the date this settlement agreement is signed.

2. For the period March 7, 1993, through July 24, 1993 (pay periods 93-7 through 93-16), each employee's back pay, including accrued interest, will be determined on a pay period by pay period basis based upon actual use of paid leave and excused absence taken on Sundays. Payments under this paragraph to all covered employees will be made on or before December 22, 1993.

3. The Agency will remit a net payment of \$14,644,240 to the National Air Traffic Controllers Association in settlement of any and all back pay claims for the period November 20, 1986, through March 6, 1993, for all covered employees. The net payment is based on a gross payment of \$18,300,000, less 20% of the principal (\$13,223,145) for Federal income tax withholding (\$2,644,600) and 7.65% of the principal for the FICA withholding (\$1,011,160).² The Agency will deliver the \$14,644,240 check to the Union by October 4, 1993.

4. Disbursement to employees of the net payment described in paragraph 3 shall be made by the Union in the following manner:

¹NATCA is the exclusive representative for the Agency employees described in the Certification of Representative dated June 19, 1987.

²The FICA deduction may be less than the amount shown because some bargaining unit members may be subject to only a 1.45% deduction at the time of payment. Should this occur, the net payment will be increased by the amount the FICA deduction is reduced.

a. Within 45 days of this agreement, the Agency shall provide the Union with a listing of employees showing the amount of each employee's net payment. An employee's net payment is calculated by deducting from the gross payment (which includes principal and interest) 20% of the principal for Federal income tax withholding and 7.65% of the principal for the FICA withholding. An employee's gross payment, based on the premise that fourteen point thirty-three percent (14.33%) of paid leave or excused absence taken by an employee occurred on Sunday, is calculated by applying the following formula: multiply 14.33% times the actual leave taken times the rate of basic pay per pay period times the rate of Sunday premium pay (25%).

b. Pursuant to the Privacy Act, and OPM GOVT-1, General System of Records, Routine Use J, the Agency will also release to the Union the home addresses of the employees covered by this agreement. The Union will include in the letter to each employee accompanying the payment check referred to in paragraph 4C below the following language:

"The FAA has provided NATCA your home address for the limited purpose of sending you this payment. NATCA will make no further use of your address unless it is obtained from another authorized source."

c. No later than December 31, 1993, the Union shall remit the net payment to each employee.

d. The Agency shall record on each employee's W-2 form for 1993 the amount of the gross payment and Federal income taxes and FICA withheld under this agreement and will supply an IRS Form 1099 as applicable.

5. The Union shall withdraw with prejudice Grievance No. (NC) ALR-92-NAT-1 and any other related grievances from the Union and bargaining unit employees and release the agency and its employees from any and all claims on behalf of employees described in paragraph 1 above arising out of the subject matter of this grievance. The Union further agrees that claims raised in this and any other related grievances on behalf of employees described in paragraph 1 above shall not become the subject of any future grievances, complaints, charges, or court proceedings.

6. This settlement agreement shall not be construed as an admission by the Agency of any unlawful or improper act against the Union or any Agency employees. The Agency specifically disclaims any liability to the Union, any Agency employees represented by the Union, or any other person.

7. This settlement shall be binding upon the Union and the Agency employees it represents, the employees' heirs, administrators, representatives, executors, successors, and assigns, and shall inure to their benefit and the benefit of the Agency and its employees and other agents.

8. The parties hereby confirm that they have acted with the advice of legal counsel and with full knowledge of all the material facts in the execution of this agreement. The agreement

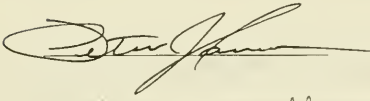
is a voluntary act of the parties, free from undue influence, fraud, misrepresentation, or coercion.

9. This agreement contains the entire understanding of the parties. No modification or waiver of any of its terms of agreement shall be valid unless it is made in writing and executed by the parties.

10. This constitutes a full and complete settlement of this matter, including all costs, attorney fees, and any other claims each party may have.

The parties have executed this agreement this 29th day of September, 1993.

FOR THE AGENCY:


Brian R. Moeller
By: [Signature]

FOR THE UNION:

[Signature]
William Osborne, Jr
James Ciprin
Susan Spia
Michael P. [Signature]

APPROVED [Signature]

SETTLEMENT AGREEMENT

This settlement agreement is made and entered into by and between the National Air Traffic Controllers Association (the Union) and the U.S. Department of Transportation, Federal Aviation Administration (the Agency). The purpose of this agreement is to resolve with finality disputes between the parties concerning the interpretation and application of their September 29, 1993, settlement agreement of Grievance No. (NC) ALR-92-17-NAT-1.

In consideration of the premises and mutual promises herein contained, it is agreed as follows:

1. The FAA holds NATCA harmless for any overruns related to employee appeals provided NATCA's net payment of \$14,644,240 plus the \$595,775 FICA adjustment payment and any accrued interest yields an insufficient sum to cover the reasonable costs of appeals, after making disbursements to employees. The agency will make a supplemental payment to NATCA to cover the reasonable costs of those appeals, provided the agency is allowed to review all of NATCA's administrative costs for reasonableness. The agency will also be allowed to review the appeals process and supportive documentation as needed to verify legitimacy. The appeal process will conform in all significant and material respects to the one set forth on the draft correspondence appended to the Union's Statement of Position to Arbitrator Bloch dated December 3, 1993.

2. The agency will calculate and pay the entitlements of eligible part-time, leave without pay and any other employees who were not on the eligibility list submitted to NATCA on November

9, 1993 using the same formula used for the other bargaining unit members. Upon receipt of payment and entitlement data from the agency in the same form provided on November 9, 1993, these employees will be covered by the settlement appeal process administered by NATCA.

3. If after a reasonable effort to deliver checks to all listed employees NATCA still holds any unclaimed or undeliverable check amounts after December 31, 1994, NATCA will expeditiously return the amount of the checks along with a listing of employees and the amount due them to the agency. The agency thereafter will accept payment responsibility.

4. This agreement contains the entire understanding of the parties.

5. This constitutes a full and complete settlement of this matter, including all costs, attorney fees, and any other claims each party may have.

The parties have executed this agreement this 9th day of December, 1993.

FOR THE AGENCY:

Severell
John H. Price
Peter J. Kuchinski

FOR THE UNION:

William W. Skorne Jr

APPROVED _____

COMPTROLLER GENERAL DECISIONS ON SUNDAY PAY

Mr. CARR. Please provide a copy of any previous Comptroller General decisions on the subject of Sunday Premium Pay.

[The information follows:]

Several Comptroller General decisions follow which support the interpretation that work must be performed on Sunday in order for an employee to receive Sunday premium pay.

In consonance with the provisions of the Corregidor-Bataan Memorial, legislation funds were appropriated to the Commission and the Veterans Administration. The Department of the Interior and Related Agencies Appropriation Act, 1966 (Public Law 89-52, approved June 28, 1965, 79 Stat. 191), provides:

CORREGIDOR-BATAAN MEMORIAL COMMISSION

Salaries and Expenses

For expenses necessary to carry out the provisions of the Act of August 5, 1953 (67 Stat. 366), as amended, \$25,000.

VETERANS ADMINISTRATION

Construction, Corregidor-Bataan Memorial

For planning and constructing a memorial on Corregidor Island, and other expenses, as authorized by the Act of August 5, 1953, as amended (36 U.S.C. 426), \$1,400,000, to remain available until expended.

The two appropriations, while involving the same project, the Corregidor-Bataan Memorial, are nevertheless separate and distinct. One, a fiscal year appropriation, is for the necessary expenses of the Commission in the performance of its functions under the act of August 5, 1953; the other, a no-year appropriation, is for the expenses of the Veterans Administration in the performance of its functions under the act.

The \$3,000 request of the Commission for travel of a member of its staff involves tasks which the Commission clearly considers to be encompassed by its statutory functions. And, although the functions of the Commission and those of the Veterans Administration are interwoven, a fact which we may presume was recognized by the Congress, we perceive no legal basis for the request of the Commission that its appropriation be augmented by an allocation of funds from the related appropriation to the Veterans Administration.

Accordingly, you are advised we are of the opinion that no part of the \$1,400,000 appropriation to the Veterans Administration is available for the travel of staff members of the Corregidor-Bataan Memorial Commission in the performance of the functions of the Commission.

[B-157963]

Compensation—Postal Service—Overtime—Leave Without Pay Effect

An annual rate regular PFS-4 distribution postal clerk on a 5-day basic work-week schedule, Monday through Friday, 8 hours each day, 8 a.m. to 4:30 p.m., who is absent without pay the first 4 hours on Monday and works until 8 p.m. is not entitled to be paid at the overtime rate for the hours of work performed after 4:30 p.m., section 5(b) of the Federal Employees Salary Act of 1965 (39

U.S.C. 3573), authorizing overtime pay for work in excess of 8 hours in a day or 40 hours in a week, defining "overtime work" as "any work ordered or approved," which is performed by an annual rate regular employee in excess of a regular work schedule, and a leave without pay period not constituting part of a basic 8-hour day or 40-hour workweek, the employee for work performed after 4:30 p.m. is only entitled to receive his basic rate of pay.

Post Office Department—Employees—Compensatory Time

A postal service annual rate regular PFS-8 employee absent without pay 4 hours on a regularly scheduled 8-hour day of his 40-hour workweek who performs work after scheduled hours may not be granted compensatory time for the work performed after hours, section 5(b) (2) of the Federal Employees Salary Act of 1965, authorizing compensatory time equal to the overtime worked only for work in excess of that included in an employee's regular work schedule, and the PFS-8 employee having performed no overtime work may not be granted compensatory time for the work performed after scheduled hours on a day that he was in a leave without pay status for part of the day.

Compensation—Postal Service—Overtime—Day and Week Work Requirements

An hourly rate regular PFS-4 postal service employee scheduled for 3 hours of service each day, 5 p.m. to 8 p.m., 6 days a week, Sunday through Friday, who is on annual leave from 5 p.m. to 6 p.m. on Friday, at which time having performed extra work earlier in the week, he completed 40 hours of work, and then works until 8 p.m. is entitled for the 2 hours of work performed after 6 p.m. on Friday to be paid overtime at the rate of 150 per centum of his hourly rate of basic compensation under section 5(b) (1) of the Federal Employees Salary Act of 1965, the hour of authorized annual leave constituting part of the employee's 8-hour day or 40-hour week; however, had the absence been in a leave without pay status, a period that is not considered a part of a basic scheduled period of work, the employee would be entitled to overtime pay for 1 hour only.

Compensation—Postal Service—Overtime—Day and Week Work Requirements

A substitute postal service employee in grade PFS-4 who at the end of a period of 40 hours authorized annual leave, from Saturday through Thursday, works 8 hours on Friday is entitled to be paid at overtime rates for the Friday work pursuant to section 5(b) (1) of the Federal Employees Salary Act of 1965, the 40 hours of work requirement, a condition precedent to the accumulation of overtime by a substitute employee, having been satisfied by the grant of 40 hours annual leave, despite the fact that a substitute employee has no scheduled tour of duty; however, time in a leave without pay status would not satisfy the 40 hours of work requirement.

Compensation—Postal Service—Overtime—Rounding Off Overtime Hours

The practice of the Post Office Department of rounding off overtime hours to the nearest whole hour at the end of each biweekly pay period being one of long standing, absent a statutory provision governing the matter, the Department may continue the practice, and a substitute postal service employee in grade PFS-4, serving 42 hours and 40 minutes the first service week of the pay period and 42 hours and 31 minutes the second week is entitled for the total overtime of 4 hours and 71 minutes to 5 hours overtime compensation at the rate of 150 per centum of his basic compensation as prescribed by section 5(b) (1) of the Federal Employees Salary Act of 1965.

Compensation—Postal Service—Overtime—Day and Week Work Requirements

The hours of work performed by a postal service employee holding two separate positions, one a regular hourly rate appointment as a janitor, PFS-1, the other a dual appointment as an annual rate distribution clerk, PFS-4, may be combined to satisfy the basic workday or workweek requirements of section 5(b) of the Federal Employees Salary Act of 1965, as both hourly rate regular employees and annual rate regular employees are entitled to overtime compensation for officially ordered work performed in excess of 8 hours a day or 40 hours a week, and upon satisfaction of the basic work requirements, overtime is payable at the rate applicable to the position or positions in which the employee performed the overtime service, and an employee scheduled to work 12 hours a week as a janitor, 10 a.m. to 12 noon, Saturday through Friday, exclusive of Sunday, and as a clerk 40 hours a week, 8 hours a day from 1:30 p.m. to 10 p.m., Saturday through Thursday, is entitled to 2 hours overtime at the PFS-4 rate on the days he works as a clerk and to 2 hours at the PFS-1 rate for the overtime on Friday.

Compensation—Postal Service—Overtime—Substitute Employees

A postal employee serving 54 hours in a week under two separate appointments, one as substitute clerk, PFS-4, the other as custodian, hourly rate regular PFS-1, who in addition to his scheduled duties as a janitor, 8 a.m. to 1:30 p.m., 6 days a week, Saturday through Friday (30 hours), performs 4 additional hours in the PFS-1 position, plus 20 hours as a substitute clerk that required work on 2 days in excess of 8 hours a day, is entitled to 14 hours of overtime for the excess hours over 40 of the total service in both positions, computed at the PFS-1 rate, the position in which all the work over the basic 40 hours was performed, and a substitute employee not entitled to overtime for work in excess of 8 hours a day, and section 5(b) of the Federal Employees Salary Act of 1965 not contemplating duplicate overtime reimbursement, work in excess of 8 hours a day, and the use of the same hours for computing work in excess of 40 hours per week, no overtime may be authorized for work performed in excess of 8 hours a day.

Compensation—Postal Service—Overtime—Day and Week Work Requirements

A postal service employee serving under a PFS-1 appointment as janitor from 8 a.m. to 4:30 p.m., Sunday through Thursday, who pursuant to 39 U.S.C. 3335, no separate appointment being involved, is assigned to perform the work of a distribution clerk, PFS-4, and is paid at that rate for work performed on Wednesday, Thursday and Friday, is entitled to overtime compensation at the PFS-4 rate for the work performed on Friday, the employee having satisfied the 40-hour workweek requirement of section 5(b) of the Federal Employees Salary Act of 1965 upon completion Thursday of five 8-hour workdays.

Compensation—Postal Service—Overtime—Day and Week Work Requirements

A PFS-4 regular distribution postal clerk in an authorized annual leave status during his regularly scheduled workweek of Monday through Friday, who works 8 hours on Saturday is entitled to overtime compensation pursuant to section 5(b) of the Federal Employees Salary Act of 1965 for the work performed outside of his regularly scheduled workweek; however, had the employee been in a leave without pay status instead of absent on authorized leave, he would not be entitled to overtime compensation for the work performed on Saturday, for while a leave with pay status may be included as a part of the basic 8-hour day or 40-hour week, a period of leave without pay may not be included.

Compensation—Postal Service—Additional Compensation—Sunday, Etc., Work

When the regular work schedule of a regular annual rate postal distribution clerk in PFS-4 includes 8 hours on Sunday and he takes 4 hours annual leave on that day, he is not entitled to be paid the extra 25 percent of his hourly rate of basic pay for that part of the 8-hour day on which he is absent on leave, for while generally leave with pay is synonymous with duty insofar as entitlement to basic pay is concerned, where the additional pay is authorized for services rendered on a certain day, entitlement to the extra pay is dependent upon the actual performance of work on that day, unless otherwise provided by statute.

Compensation—Postal Service—Overtime—Rate Payable

A substitute postal distribution clerk in PFS-4 who served a total of 32 hours from Saturday through Tuesday, and who pursuant to 39 U.S.C. 3335 is assigned to perform on Wednesday and Thursday the duties of a PFS-7 position, for which he has previously qualified to receive higher level pay, is entitled to receive, for the 8 hours of work that exceeded 40 hours of combined service in one service week, overtime compensation computed at the PFS-7 rate.

To the Postmaster General, November 17, 1965:

On November 3, 1965, your Deputy Postmaster General requested our decision construing 39 U.S. Code 3573, as amended by section 5(b) of the Federal Employees Salary Act of 1965, Public Law 89-301, 79 Stat. 1114, reading in part as follows:

(a) In emergencies or if the needs of the service require, the Postmaster General may require employees to perform overtime work or to work on holidays. Overtime work is any work officially ordered or approved which is performed by—

- (1) an annual rate regular employee in excess of his regular work schedule;
- (2) an hourly rate regular employee in excess of eight hours in a day or forty hours in a week, and
- (3) a substitute employee in excess of forty hours in a week.

(b) For each hour of overtime work the Postmaster General shall compensate an employee in the "PFS" Schedule as follows:

(1) He shall pay each employee in or below salary level PFS-7 compensation at the rate of 150 per centum of the hourly rate of basic compensation for his level and step computed by dividing the scheduled annual rate of basic compensation by two thousand and eighty.

(2) He shall grant each employee in or above salary level PFS-8 compensatory time equal to the overtime worked, or in his discretion in lieu thereof pay such employee compensation at the rate of 150 per centum of the hourly rate of basic compensation of the employee or of the hourly rate of the basic compensation for the highest step of salary level PFS-7, whichever is the lesser.

(c) For officially ordered or approved time worked on a day referred to as a holiday in the Act of December 26, 1941 (55 Stat. 862; 5 U.S.C. 87b), or on a day designated by Executive order as a holiday for Federal employees, under regulations prescribed by the Postmaster General, an employee in the PFS schedule shall receive extra compensation, in addition to any other compensation provided for by law, as follows:

(1) Each regular employee in or below salary level PFS-7 shall be paid extra compensation at the rate of 100 per centum of the hourly rate of basic compensation for his level and step computed by dividing the scheduled annual rate of basic compensation by two thousand and eighty.

(2) Each regular employee in or above salary level PFS-8 shall be granted compensatory time in an amount equal to the time worked on such holiday within thirty working days thereafter or, in the discretion of the Postmaster General, in lieu thereof shall be paid extra compensation for the time so worked at the rate of 100 per centum of the hourly rate of basic compensation for his

level and step computed by dividing the scheduled annual rate of basic compensation by two thousand and eighty.

(3) For work performed on Christmas Day (A) each regular employee shall be paid extra compensation at the rate of 150 per centum of the hourly rate of basic compensation for his level and step, computed by dividing the scheduled annual rate of basic compensation by two thousand and eighty, and (B) each substitute employee shall be paid extra compensation at the rate of 50 per centum of the hourly rate of basic compensation for his level and step.

* * * * *

(h) For the purposes of this section and section 3571 of this title—

(1) "Annual rate regular employee" means an employee for whom the Postmaster General has established a regular work schedule consisting of five eight-hour days in accordance with section 3571 of this title.

(2) "Hourly rate regular employee" means an employee for whom the Postmaster General has established a regular work schedule consisting of not more than forty hours a week.

(3) "Substitute employee" means an employee for whom the Postmaster General has not established a regular work schedule.

Pursuant to an informal understanding with representatives of your Department, herewith is our decision upon items 1-9 and upon items 11 and 13. Questions 10 and 12 require further consideration but answers thereto will be furnished as soon as possible.

1. Employee A is an annual rate regular distribution clerk in PFS-4. He has a scheduled five day basic work week, Monday through Friday, eight hours each day from 8:00 A.M. to 4:30 P.M. each day. On Monday, he is on leave without pay for the first four hours. He then works until 8:00 P.M. Is employee A entitled to be paid at overtime rates for the hours of actual work performed after 4:30 P.M., or is he entitled to be paid only his regular computed hourly rate?

The quoted statute defines "overtime work" as "any work ordered or approved" which is performed by—

(1) An annual rate regular employee in excess of his regular work schedule.

Under the quoted statute an employee must have been in a work or leave with pay status for the number of hours included in his regular work schedule before he may be compensated at overtime rates for work performed outside his scheduled hours. While a leave with pay status may be included as a part of the basic 8-hour day or 40-hour week, a period of leave without pay may not be included for such purpose. Compare 25 Comp. Gen. 102; *id.* 121; and also FPM 550-4, 1-3b(1) and (2) and FPM Supplement 990-2, S1-3b(b). Accordingly, employee "A" would not be entitled to be compensated at the overtime rate for service rendered after 4:30 p.m. but only at his basic rate.

2. Employee B is an annual rate regular in PFS-8. His work schedule is identical with Employee A. He is on leave without pay for the first four hours on Monday and he works until 8:00 P.M. The Department has decided to grant employees in PFS-8 to 14 who perform overtime work compensatory time rather than compensation. Is employee B entitled to compensatory time for hours of actual work performed after 4:30 P.M.?

In line with the answer to question 1, employee "B" performed no overtime work—work in excess of that included in his regular work

schedule. Since compensatory time may be granted only for overtime work performed, employee "B" is not entitled to compensatory time for the hours of work performed after 4:30 p.m.

3. Employee C is an hourly rate regular in PFS-4. He is scheduled to perform three hours of service each day, six days a week: Sunday through Friday, from 5:00 P.M. to 8:00 P.M. On Friday he is on authorized annual leave between 5:00 P.M. and 6:00 P.M. He works until 8:00 P.M. Because of extra work performed earlier in the week, he will have performed 40 hours of actual work during the service week at 6:00 P.M. on Friday if the hour of annual leave is counted. Is employee C authorized to be paid overtime for the two hours after 6:00 P.M.? If your answer is in the affirmative, would it be the same if he were on authorized leave without pay?

The first question in this example is answered in the affirmative. However, if employee "C" were on leave without pay rather than annual leave for the 1 hour, he would be entitled to pay at the overtime rate for 1 hour only.

4. Employee D is a substitute in PFS-4. He is on authorized annual leave from Saturday through Thursday inclusive for a total of 40 hours. He is called to work on Friday at 8:00 A.M. and works until 4:30 P.M. Is employee D entitled to be paid at overtime rates for the eight hours work performed on Friday? If your answer is in the affirmative, would your answer be the same if part of the leave had been authorized leave without pay?

For the purpose of satisfying the 40 hours of work requirement, a condition precedent to accumulation of overtime by a substitute employee, time in a leave with pay status should be counted despite the fact that a substitute has no scheduled tour of duty. However, time in a leave without pay status may not be counted for such purpose. The two questions posed concerning employee "D", therefore, are answered "yes" and "no" respectively. Compare answer to question 1.

5. Employee E is a substitute in PFS-4. For the first service week of the pay period he works 42 hours and 40 minutes. For the second week of the pay period he works 42 hours and 31 minutes. May the excess over 40 hours in each week, 2 hours and 40 minutes and 2 hours and 31 minutes respectively, be totaled at the end of the two week pay period and rounded off to the nearest whole hour, i.e., 5 hours, for overtime pay purposes, or is the Department to round off the overtime to the nearest hour each week, i.e., 3 hours overtime for each week, or a total of 6 overtime hours, for the pay period. It has always been the practice of the Post Office Department to round off at the end of the pay period.

We are aware of no statutory provision governing the matter of rounding off overtime hours. However, we understand that the practice of rounding off overtime hours at the end of each biweekly pay period is one of longstanding in the Post Office Department. Under the circumstances we will not object to the practice of rounding off overtime hours to nearest hour at the end of each pay period being continued. The first question is answered in the affirmative and the second question in the negative.

6. Employee F has a regular hourly rate appointment as a janitor in PFS-1. He also has a dual appointment as an annual rate distribution clerk in PFS-4. As a janitor he is scheduled to work 12 hours a week, from 10:00 A.M. to 12:00

Noon, Saturday through Friday, exclusive of Sunday. As an annual rate regular distribution clerk he is regularly scheduled to work 40 hours a week, namely eight hours a day from 1:30 P.M. to 10:00 P.M., Saturday through Thursday, exclusive of Sunday. These are two distinct and separate appointments. Does this fact require that for overtime purposes each appointment is separate, or may the hours of service in each of these two separate, independent positions be combined for overtime purposes? If your answer is that the hours may be combined, at what rate is overtime to be paid to employee F?

Since both hourly rate regular employees and annual rate regular employees are entitled to overtime compensation for officially ordered work performed in excess of 8 hours a day or 40 hours a week, the hours of work in the two positions may be combined in order to satisfy the basic workday or workweek requirements. After the basic requirements have been satisfied overtime shall be computed at the rate applicable to the position or positions in which the employee actually performs overtime service—work in excess of 8 hours a day or 40 hours a week. Thus, employee "F" would be entitled to 2 hours overtime based on the PFS-4 rate for service on Saturday, Monday, Tuesday, Wednesday and Thursday. In addition, he would be entitled to 2 hours overtime based on the PFS-1 rate for service on Friday. However, duplicate use of same hours of work is not authorized. See reply to item 7, below.

7. Employee G has two separate appointments. One appointment is as substitute clerk, PFS-4, the other as custodian, hourly rate regular PFS-1. In the latter position he is scheduled to work from 8:00 A.M. to 1:30 P.M., six days a week, Saturday through Friday, Sunday excluded. The substitute service is as needed. In a week of service, employee G worked the following hours:

	PFS-4 position	PFS-1 position
Saturday	—	5
Sunday	8	—
Monday	4	5
Tuesday	3	5
Wednesday	5	5
Thursday	—	9
Friday	—	5
Total	20	34

Is the employee entitled to 14 hours overtime for the excess hours over 40 of the total service in both positions. If so, at what rate would he be paid for the overtime? Is the employee entitled to overtime on a daily basis: 1 hour for Monday, 2 hours for Wednesday and, if so, at what rate would the overtime be paid?

The first question is answered in the affirmative. Overtime should be computed on the rate for the PFS-1 position since all work performed after completion of the basic 40 hours was in the PFS-1 position. As a substitute employee, "G" is not entitled to overtime for work in excess of 8 hours a day. Even if we assume the service in the regular position was performed daily later than the substitute service on Monday and Wednesday, it would not affect the amount to which

employee "G" is entitled. The statute does not contemplate duplicate reimbursement for overtime—reimbursement for work in excess of 8 hours a day plus reimbursement for the same such hours as being in excess of 40 hours per week. See page 8, H. Rept. No. 792, 89th Cong., August 16, 1965. Therefore, no overtime is authorized for work in excess of 8 hours on Monday or Wednesday.

8. Employee H is an annual rate regular in PFS-1, Janitor. As such janitor, his work week is Sunday through Thursday, 8:00 A.M. to 4:30 P.M. He performs service at this regular position Sunday through Tuesday. Pursuant to Section 3335 of Title 39, U.S. Code, he is assigned to perform the work of a distribution clerk PFS-4 on Wednesday, Thursday and Friday between the hours of 8:00 A.M. and 4:30 P.M. He is paid compensation at the rate of the higher level position on Wednesday, Thursday and Friday. No separate appointments are involved. Is employee H entitled to overtime for the eight hours work he performs on Friday? If the answer is in the affirmative, at what rate?

The first question is answered in the affirmative. Employee "H" would be entitled to overtime compensation for work performed on Friday at the PFS-4 rate. Compare answer to question 6.

9. Employee I is an annual rate regular distribution clerk in PFS-4. He has a regularly scheduled work week of Monday through Friday, 8:00 A.M. to 4:30 P.M. He works eight hours on Saturday as a distribution clerk. This work is performed before and, hence, outside of his regularly scheduled work week. He performs no actual work in his regularly scheduled work week as he is in an annual leave status the full regularly scheduled work week. Is employee I entitled to be paid eight hours overtime for the service he performed on Saturday? If the answer is in the affirmative, would he be entitled to be paid overtime for such service if he were in an authorized leave without pay status?

The answer to the first question is affirmative. If employee "I" were authorized leave without pay as distinguished from annual leave he would not be entitled to overtime compensation for work performed on Saturday. Compare answer to question 1.

11. Employee K is a regular annual rate distribution clerk in PFS-4. His regular work schedule includes an eight hour period of service on Sunday, from 8:00 A.M. to 4:30 P.M. At 1:30 P.M. he takes annual leave. Is employee K entitled to be paid the extra 25% of his hourly rate of basic compensation for the hours between 1:30 P.M. and 4:30 P.M.? If your answer is in the affirmative, would your answer be the same if he were absent on authorized leave without pay?

The first question is answered in the negative. While generally leave with pay is synonymous with duty insofar as entitlement to basic pay is concerned, where, as here, additional pay is authorized for services rendered on a certain day, entitlement to such additional pay would be dependent upon the actual performance of work on such day, unless otherwise expressly provided by statute.

13. Employee M is a substitute distribution clerk in PFS-4. He works from Saturday through Tuesday for a total of thirty-two hours. Pursuant to Section 3335, on Wednesday and Thursday he is assigned to perform the duties of a position in PFS-7, for which he has previously qualified to receive higher level pay. He performs eight hours service each day in the higher level position. Is employee M entitled to receive eight hours overtime because the combined service exceeded 40 hours in one service week? If the answer is in the affirmative, at what rate is the overtime to be paid?

The first question is answered in the affirmative. Employee "M" would be entitled to overtime pay for 8 hours computed at the PFS-7 rate. Compare answer to question 6.

[B-157244]

Lease-Purchase Program—Property Transfers From General Services Administration

Property declared excess by the Department of the Navy without qualification or restriction and needed by the Post Office Department for a lease-purchase construction project authorized under 39 U.S.C. 2103 may be conveyed at current fair market value by the General Services Administration to the successful bidder on the project, the value to be approved by the Bureau of the Budget, and although the authority in section 203(e)(3)(G) of the Federal Property and Administrative Services Act of 1949, as amended, to negotiate disposals of property applies to "surplus property, that term is defined in section 3(g) of the act as including excess property that is not required for the needs and the discharge of the responsibilities of all Federal agencies, and the Post Office Department having authority to acquire options on property from private parties to effectuate the lease-purchase program, even though not approved to receive direct transfers of surplus property, the General Services Administration may convey the needed property to the successful bidder as though the Post Office had acquired an option from a private owner.

To the Administrator, General Services Administration, November 18, 1965:

Reference is made to letter dated October 29, 1965, from your General Counsel furnishing additional information in support of his request of July 13, 1965, for advice as to whether the conclusion announced in our report of November 6, 1963, to the Chairman of the House Subcommittee on Government Activities, Committee on Government Operations, is applicable to the proposed negotiated sale of the Twentynine Palms property. The proposed sale involves property which was formerly a portion of Sunburnt Homes, Marine Corps Base, Twentynine Palms, California. It has been proposed to sell the property to the successful bidder awarded the contract for the construction of a building to be leased to the Post Office Department.

The Explanatory Statement in justification of the proposed sale filed with the appropriate congressional committees as required by section 203(e)(6) of the Federal Property and Administrative Services Act of 1949, as amended, 40 U.S.C. 484(e)(6), stated that the involved property consisting of one parcel of unimproved land containing 0.844 of an acre was acquired in 1955 for \$1,415 (prorated); that on February 10, 1965, the appraised fair market value of the land was estimated at \$3,500, and that the proposed sale would be made to the successful bidder for construction on the site of a building to be leased to the Post Office Department. It was stated further that pursuant to a request made by the Post Office Department on March

requirement, we agree with the conclusion set out in your General Counsel's report of August 11, 1966, that the failure of Hyman to list a fabricator of the architectural cast stone rendered its bid nonresponsive and precludes its consideration for an award.

It is suggested, however, that in future invitations for bids involving architectural cast stone or any other material with respect to which the fabrication and installation are both to be performed by specialty subcontractors, the invitations should specifically require bidders to list separately both the fabricator and the installer.

The file forwarded with the August 11 report from your General Counsel is enclosed.

[B-159779]

Compensation—Wage Board Employees—Premium Pay—Sunday Work Regularly Scheduled

The Sunday premium pay benefits provided under section 405(f) of Public Law 89-504 (5 U.S.C. 673c) for employees whose regular work schedule includes an 8-hour period of service any part of which is within the period commencing at midnight Saturday and ending at midnight Sunday, payable at the rate of 25 per centum of an employee's hourly rate of basic compensation for each hour of work performed during the 8-hour period of service, apply to wage-hour employees whose regularly scheduled workweek includes an 8-hour nonovertime tour of duty on Sunday between the hours of 7 a.m. and 3 p.m. or 3 p.m. and 11 p.m.

Compensation—Wage Board Employees—Premium Pay—Two Sundays in Workweek

Where wage board employees whose regular weekly work schedule includes two Sundays—an 8-hour tour of nonovertime duty beginning at 11 p.m. or 11:30 p.m. on the first Sunday, the last 8-hour tour of nonovertime duty in the workweek commencing at the same hours on the next Saturday—section 405(f) of Public Law 89-504 (5 U.S.C. 673c) applies to both regularly scheduled 8-hour periods of work, one occurring at the beginning and the other at the end of an employee's regular 40-hour workweek, and as there is no requirement for the performance of a minimum period of Sunday work as a condition of entitlement to the premium compensation, the employees are entitled under the act to payment of Sunday premium compensation limited to 8 hours of work actually performed during each regularly scheduled 8-hour period of service, any part of which falls within the period Saturday midnight to Sunday midnight.

Compensation—Wage Board Employees—Premium Pay—Leaves of Absence

Wage board employees who when they work a regularly scheduled 40-hour week that includes Sunday are entitled to the Sunday premium compensation authorized by section 405(f) of Public Law 89-504 (5 U.S.C. 673c), may not be paid premium compensation for a period of absence during the regularly scheduled 8-hour Sunday work period. Although leave with pay is synonymous with duty for the purposes of basic pay, additional pay is only authorized for services on a certain day and entitlement to the additional pay depends upon the actual performance of work on that day, unless otherwise expressly provided by statute.

**To the Public Printer, United States Government Printing Office,
August 22, 1966:**

Your letter of July 27, 1966, presents for our decision certain questions concerning Sunday premium pay benefits applicable to wage board employees under the proviso added to section 23 of the Independent Offices Appropriation Act, 1935, as amended, 5 U.S.C. 673c (5 U.S.C. 5544), by section 405(f) of Public Law 89-504, approved July 18, 1966, 80 Stat. 298.

The said proviso reads as follows:

Provided further, That employees subject to this section whose regular work schedule includes an eight-hour period of service any part of which is within the period commencing at midnight Saturday and ending at midnight Sunday shall be paid extra compensation at the rate of 25 per centum of his hourly rate of basic compensation for each hour of work performed during that eight-hour period of service.

Your letter is, in part, as follows:

Sunday is the first day of the 5-day regularly scheduled work week of employees of the Government Printing Office who work between the hours of 7:00 a.m. and 3:00 p.m. and 3:00 p.m. and 11:00 p.m. Under the Act, we understand that these employees will be entitled to premium pay for one day. However, we have a group of guards whose regularly scheduled 5-day work week begins at 11:00 p.m. Sunday and ends at 7:00 a.m. of the following Sunday and a force of maintenance employees whose regularly scheduled 5-day work week begins at 11:30 p.m. Sunday and ends at 8:00 a.m. the following Sunday. Thus work is performed by these groups between midnight Saturday and midnight Sunday on both the first and last days of the regularly scheduled 5-day work week.

While section 405(f) is applicable to employees whose regular work week includes "an" 8-hour period of service and provides extra compensation for each hour of work performed during "that" 8-hour period, it is not clear that the amount of extra compensation payable is limited to 8 hours. Neither is it clear that a minimum of 1 hour must be worked before the provision becomes applicable. Consequently, it appears that employees on both the 11:00 p.m. to 7:00 a.m. and 11:30 p.m. to 8:00 a.m. shifts may be entitled to premium pay for the first and last days of their work week. Is this interpretation correct, and if not, what is the proper basis for computing the amounts payable?

In administering other premium pay provisions, we have applied your decisions to require that employees must actually perform work in order to be entitled. Will the new Act require modification of these rulings so as to allow premium pay to employees who are absent on leave with pay between midnight Saturday and midnight Sunday? For example, if an employee works 1 hour in the covered period and then is granted leave for the remaining 7 hours, is premium pay allowable for the entire 8 hours?

S. Rept. No. 1187, 89th Cong., 2d sess. 4 on H.R. 14122 which became Public Law 89-504 contains the following pertinent statement in explanation of the provisions of section 405.

Section 405 applies to classified and wage board employees a significant liberalization granted postal employees in 1965. This section requires a premium of 25 percent of base pay for any employee whose regularly scheduled 5-day work-week includes Sunday. The premium will be paid for the entire 8-hour period of service regardless of the numbers of hours which actually occur on Sunday. This is identical to the provisions for regular postal employees enacted last year.

The Hearings before the Committee on Post Office and Civil Service, U.S. Senate, 89th Cong., 2d sess., on H.R. 14122, held on April 20, 21, 22,

25, 26 and 27, 1966, beginning on page 4, speaks in pertinent part as follows concerning the new Sunday pay provisions:

The House bill, H.R. 14122, adds new * * * Sunday pay benefits for most Federal employees. Equity allows no alternative but to concur in the proposals to extend to additional groups * * * premium pay at 25 percent of base rates for nonovertime work on Sunday.

* * * Congress last year prescribed premium pay for nonovertime Sunday work of postal employees; it is equitable to extend the same policy to other salaried employees and to those paid under wage-board schedules.

The clear wording of the quoted proviso as well as the quoted explanation from the Senate report requires the conclusion that those wage board employees whose regularly scheduled workweek includes Sunday and who work their regular 8-hour tour on that day—nonovertime—between the hours of 7 a.m. and 3 p.m. or 3 p.m. and 11 p.m. would be entitled under the provisions of such proviso to the 8 hours of Sunday premium pay authorized therein.

The next questions concern those employees whose regularly scheduled workweeks commence with an 8-hour tour of duty—nonovertime—beginning at 11 p.m. and 11:30 p.m., respectively, on the first Sunday of their workweeks and whose last 8-hour tour of duty—nonovertime—in their workweek commences at the same hours (11 p.m. or 11:30 p.m., respectively) on the next succeeding Saturday—7 and 7½ hours, respectively, of each such last tour falling on the Sunday ending their workweeks. For purposes of the questions contained in the second paragraph quoted above from your letter, we assume that each of the above 8-hour tours represent 8 hours of actual work. Leaves of absence will be disposed of in the answer to your last question. You say that it is not clear that the amount of extra compensation payable under section 405(f) is limited to 8 hours or that a minimum of 1 hour must be worked before that section becomes applicable.

We find nothing in the language of the quoted proviso or in its legislative history specifically dealing with the entitlement of an employee to premium pay for two Sundays when a part of each Sunday is included in a single regular weekly work schedule. However, the proviso does specifically provide that when any part of an employee's regular 8-hour daily tour of duty falls on a Sunday, he is entitled to Sunday premium pay for each hour of work performed during such 8-hour period. Moreover, S. Rept. No. 1187, quoted above, clearly explains that "The premium will be paid for the entire 8-hour period of service regardless of the numbers of hours which actually occur on Sunday."

In view thereof we are of the opinion that the most reasonable construction of the quoted proviso is that it applies to both regularly

scheduled 8-hour periods of work, one occurring at the beginning and the other at the end of the employee's regular 40-hour week.

Independently of the quoted proviso 5 U.S.C. 673c provides that any work in excess of 8 hours per day is overtime work. The effect of the quoted proviso is to authorize Sunday premium pay for work performed during the regular 8-hour period of service. Therefore, we further conclude that the Sunday premium compensation provided by the quoted proviso is limited to 8 hours of work actually performed during each regularly scheduled 8-hour period of service any part of which falls within the period Saturday midnight to Sunday midnight. There is no requirement in the quoted proviso for performance of a minimum period of Sunday work as a condition of entitlement to the premium pay benefits provided for therein.

With respect to your last question concerning employees who are absent on leave, your attention is invited to our decision of November 17, 1965, 45 Comp. Gen. 257, covering question and answer No. 11 which reads:

Employee K is a regular annual rate distribution clerk in PFS-4. His regular work schedule includes an eight hour period of service on Sunday, from 8:00 A.M. to 4:30 P.M. At 1:30 P.M. he takes annual leave. Is employee K entitled to be paid the extra 25% of his hourly rate of basic compensation for the hours between 1:30 P.M. and 4:30 P.M.? If your answer is in the affirmative, would your answer be the same if he were absent on authorized leave without pay?

The first question is answered in the negative. While generally leave with pay is synonymous with duty insofar as entitlement to basic pay is concerned, where, as here, additional pay is authorized for services rendered on a certain day, entitlement to such additional pay would be dependent upon the actual performance of work on such day, unless otherwise expressly provided by statute.

The foregoing concerns the provisions of 39 U.S.C. 3573(e), the effect of which is identical with the quoted proviso. In line with that decision the premium pay authorized by the quoted proviso is not payable during periods of leaves of absence.

[B-154522]

Quarters Allowance—Entitlement—Submarine Duty—Temporary Duty Ashore

Officers of the uniformed services without dependents in pay grade above O-3 who are members of the off-ship crew of a two-crew nuclear-powered submarine temporarily serving ashore for more than 15 days during a period of training and rehabilitation have no right to elect not to occupy Government quarters ashore and receive instead a basic allowance for quarters, the right of election authority in 37 U.S.C. 403(b) limited to the permanent station of an officer, there is no authority for off-ship crew members to elect not to occupy available Government quarters ashore at the place where they are assigned to temporary duty and to receive instead a basic allowance for quarters.

420 which bars increased allowances, including transportation allowances, for dependents for any period during which the dependent is entitled to basic pay under section 204 of Chapter 37, as a member who is on active duty. Consequently, we view the above-cited provision of the regulations as barring entitlement for the transportation of a dependent who is in receipt of basic pay while in an active duty status.

Lieutenant Anderson during the period of her travel from Palo Alto, California, to Lawton, Oklahoma, was placed in an excess leave active duty status and was not entitled to pay or allowances, in accordance with Army Regulation 601-135 cited above. Since the service member's wife was not entitled to basic pay or allowances in her own right during the period in question, it is our view that item 7 of paragraph M7000 of the Joint Travel Regulations would provide no bar to the payment to Major Anderson of his claim for dependent travel allowance incident to his wife's trip from Palo Alto, California, to Lawton, Oklahoma, during this period. *See* 47 Comp. Gen. 467 (1968).

Additionally, we are of the opinion that item 11, paragraph M7000 of the regulations does not provide a proper basis for the denial of the claim for dependent travel as Lieutenant Anderson has not received travel allowances for her travel from Palo Alto to Lawton. She was paid travel allowances as a member only for her travel from Lawton to her temporary duty station, Fort Sam Houston, Texas, and from there to Fort Sill, Oklahoma, her permanent station.

We have been advised informally that Lieutenant Anderson is the former Kathleen Scherff and that she received pay and allowances as a member in her maiden name as follows: May 1972, \$581; June 1972, \$580.11; and July 1972, \$581. However, there is nothing in the record to indicate whether these payments were returned, or if any necessary recoupment has been accomplished in view of her nonpay status commencing June 12, 1972. We believe that this matter should be clarified.

Subject to the foregoing, payment on the voucher herewith returned is authorized if otherwise correct.

[B-159779]

Time—Standard Advanced to Daylight Saving—Compensation Effect

An employee on an 8 hour regular shift of duty, which included 2 a.m. on the last Sunday in April when standard time was advanced 1 hour to daylight saving time (15 U.S.C. 260a(a)), who was placed on annual leave for 1 hour so 1 hour of pay would not be lost may not be paid Sunday premium pay for the 1 hour of annual leave since 5 U.S.C. 5546 does not authorize premium pay for a leave status during any part of a regularly scheduled tour of duty on Sunday. However, the night differential prescribed by 5 U.S.C. 5545(c) is payable for a paid leave period that is less than 8 hours, including both night and day hours, and it is sufficient to only note on the time and attendance report the fact the leave was attributable to the time change. Thus an employee who works the 12 midnight to 8 a.m. shift on the Sunday when time is advanced will be placed on an-

annual leave for 1 hour and receive night differential for 6 hours including the hour of annual leave.

To the Chairman, Atomic Energy Commission, October 30, 1973:

This refers to letter of August 8, 1973, from the Acting Assistant General Manager, Controller, of your agency, requesting a decision from our Office concerning the propriety of paying an employee Sunday and night differential pay for the hour of annual leave with which he has been charged for the specific purpose of paying him for 8 hours when working on the shift during which standard time is advanced 1 hour in the spring.

The letter of August 8, 1973, states in part as follows:

As the advance of one hour in standard time, generally referred to as "changing to daylight saving time", occurs at 2:00 a.m. on the last Sunday in April, in accordance with 5 U.S.C. 260 a.(a), employees regularly scheduled to work an 8 hour shift which includes 2:00 a.m. would lose an hour of work and pay on that shift except where the administrative arrangement for charging the employee with annual leave approved in 26 Comp. Gen. 921 (1947) is applied. The question of night differential for the hour of leave charged to the employee was not germane in 1947 as the Federal Employees Pay Act of 1945, as amended, did not then permit payment of night differential to an employee in paid leave status. Presently, however, 5 U.S.C. 5545(a)(2) specifies that nightwork is regularly scheduled work between the hours of 6:00 p.m. and 6:00 a.m. and, for premium pay purposes, includes "periods of leave with pay during these hours if the periods of leave with pay during a pay period total less than 8 hours." Subject to the less than 8 hours during a pay period limitation above, it appears that employees whose regular work schedule includes 2:00 a.m. and is wholly within the 12 hour period specified in 5 U.S.C. 5545(a)(2) would be paid night differential for the hour of annual leave charged them in accordance with 26 Comp. Gen. 921. However, it is not clear whether we would be required to pay night differential in the case of employees whose regular work schedule included 2:00 a.m. but ended at some hour outside that 12 hour nightwork period, in view of the statement in 26 Comp. Gen. 921 that "the exact hour of absence on leave need not be shown on the Standard Form No. 1130, 'Time and Attendance Report'." This statement appears to provide the option of considering the hour of annual leave as being within the employee's regular work schedule but outside the statutory nightwork period so as to avoid payment of night differential for that hour. As Sunday premium pay was not provided Federal employees until enactment of Public Law 89-504 of July 18, 1966, there was no need in the above decision relating to daylight saving and standard time matters to discuss application of Sunday premium pay to the hour of annual leave in question here. As stated in 46 Comp. Gen. 158 (1966), the general rule is that employees may not be paid Sunday premium compensation for a period of absence during their regularly scheduled 8 hour Sunday work period, as entitlement to this additional pay depends upon the actual performance of work on that day. This decision, however, does not make reference to the special situation discussed herein in which the annual leave is not requested by the employee in the usual manner for his own purposes (as implied in the questions answered by 46 Comp. Gen. 158) but is administratively charged to him as an adjustment for the regularly scheduled hour he is prevented from working because of agency compliance with 5 U.S.C. 260a(a).

The following questions are submitted:

1. Is it appropriate to pay Sunday premium pay for the hour of annual leave which must be charged to the employee under the special circumstances described above, in distinction to the general rule stated in 46 Comp. Gen. 158?
2. a. Because of present premium pay implications, is it necessary to designate the exact hour covered by the annual leave charged to the employee in

this special circumstance, contrary to the advice contained in 26 Comp. Gen. 921?

- b. If so, is it the hour beginning at 2:00 a.m. so as to reflect the official time of advancing standard time which is specified in 15 U.S.C. 260a. (a).?
3. If the answer to question 2.a. is negative, is it required to pay night differential for the undesignated hour of leave to an employee whose regularly scheduled work ends at an hour outside the 12 hour nightwork period specified in 5 U.S.C. 5545 (a) (2), and whose periods of pay with leave during the pay period concerned total less than 8 hours?
4. If the answer to question 1. is positive, would it be required to make payments of Sunday premium pay to employees concerned retroactive to the pay period commencing July 31, 1966, when the Sunday premium pay provision became effective?
5. If the answer to question 3. is negative, for what periods are we required to undertake collection of any past overpayment of night differential premium pay?

Section 5546(a) of Title 5, U.S. Code, reads as follows:

(a) An employee who performs work during a regularly scheduled 8-hour period of service which is not overtime work as defined by section 5542(a) of this title a part of which is performed on Sunday is entitled to pay for the entire period of service at the rate of his basic pay, plus premium pay at a rate equal to 25 percent of his rate of basic pay.

In 5 CFR 550.103 of the Civil Service Commission's regulations "Sunday work" is defined as follows:

(c) "Sunday work" means all work during a regularly scheduled tour of duty within a basic workweek when any part of that work is performed on Sunday.

Section 550.171 of the regulations authorizes pay for Sunday work as follows:

An employee is entitled to pay at his rate of basic pay plus premium pay at a rate equal to 25 percent of his rate of basic pay *for each hour of Sunday work which is not overtime work* and which which is not in excess of 8 hours for each regularly scheduled tour of duty which begins or ends on Sunday. [Italic supplied.]

While generally leave with pay is synonymous with duty insofar as entitlement to basic pay, where, as here, additional pay is authorized for services rendered on a certain day, entitlement to such additional pay would be dependent upon actual performance of work on such day, unless otherwise expressly provided by statute. Thus, since there is nothing in 5 U.S.C. 5546 providing for payment of Sunday premium pay to an employee who is in a leave status during any part of his regularly scheduled tour of duty on Sunday, question number 1 is answered in the negative. *Cf.* 5 U.S.C. 5545 (a) (2).

In 26 Comp. Gen. 921 (1947) when we were considering payment of night differential pay we stated that whenever there is a change from standard time to daylight savings time leave is charged on that day on account of the reduction of the number of hours the employee is required to remain on duty, the exact hour of absence on leave need not be shown on the Standard Form No. 1130 "Time and Attendance Report" but an appropriate brief notation attributing the leave charge to the change from standard time to daylight savings time may be entered in the space provided for "Remarks." That would appear to be equally applicable to the case presented here. Question number 2a is

answered in the negative. In view of our reply to question number 2a, no answer is required to question number 2b.

Section 5545(a) of Title 5, U.S. Code, provides in pertinent part as follows:

(a) * * * nightwork is regularly scheduled work between the hours of 6:00 p.m. and 6:00 a.m., and includes—

(2) periods of leave with pay during these hours if the periods of leave with pay during a pay period total less than 8 hours.

5 CFR 550.122(b) of the Civil Service Commission's regulations concerning computation of night pay differential provides as follows:

(b) *Absence on leave.* An employee is entitled to a night pay differential for a period of paid leave only when the total amount of that leave in a pay period, including both night and day hours, is less than 8 hours.

If an employee's leave taken from scheduled night duty aggregates less than 8 hours during a pay period, under the above-quoted statute and regulation the employee is entitled to continuance of his night differential pay during those "less than 8 hours" leave. *See* 36 Comp. Gen. 734 (1957). In other words if an employee works the 12 midnight to 8 a.m. shift on the last Sunday of April when the standard time is advanced 1 hour he will be placed on annual leave for 1 hour and receive night differential for a total of 6 hours including the hour of annual leave. Question number 3 is answered in the affirmative.

In view of the answers to questions number 1 and 3, no reply to questions number 4 and 5 is required.

[B-177731]

Contracts—Specifications—Qualified Products—Listing—Misrepresentation

In the procurement of lighting panels to replace the panel designed to support the integrated electronics control equipment developed for the F-4 aircraft where a drawing stated the panel must be in accordance with a military specification that required a qualified products listing (QPL), but the request for quotations (RFQ) did not evidence such a requirement, although the award to a firm not on the QPL will not be disturbed as the award was not precluded by the RFQ and the contract is nearly completed, to require the displaced initial low offeror to unnecessarily comply with the QPL requirement was prejudicial, unfair and costly. Furthermore, although the contracting officials erroneously failed to take action when it was recognized before award the procurement should have been advertised utilizing the applicable military specification, this approach will be used to procure the panels in the future.

To the Secretary of the Navy, October 30, 1973:

We have considered the protest of California Plasteck Inc. against the award of a contract to Airmark Plastics Corp. under request for quotations (RFQ) No. N00383-72-Q-0580. Even though we have concluded that its protest should be denied for the reasons set out below, we believe that certain aspects of this procurement require corrective action.

PROPELLER CONTROL SYSTEM

Mr. CARR. As a result of the April 5, 1991, accident at Brunswick, Georgia which claimed the life of former Senator John Tower, the Safety Board determined that the propeller control system for the aircraft did not meet certification requirements and that FAA designated engineering representatives and certification personnel had approved a change in the manufactured process of certain components in the propeller system that ultimately led to the accident.

What steps will the FAA take to preclude further such events?
[The information follows:]

FAA issued two Airworthiness Directives (AD) immediately upon determining the cause of the Brunswick accident. Those AD's corrected the problems in the existing fleet of propellers.

For longer term solutions, FAA conducted a Special Certification Review of the Hamilton Standard's propeller design, and it was determined that all certification requirements were met but certain procedural changes were advisable. Hamilton Standard's Quality Assurance Manual was changed to require all design changes, major and minor, to be FAA reviewed and approved. Hamilton Standard's methods of changing engineering designs and reporting failures, malfunctions and defects was improved and formalized in their Quality Assurance Manual.

FAA has increased the surveillance, supervision and counseling of Hamilton Standard with the intent of improving the quality of their type certification, continued airworthiness and quality control systems.

CREW PAIRING

Mr. CARR. The pairing of relatively limited experience pilots on scheduled airline flights has been found to be a factor in several air carrier and commuter accidents in recent years. In response, the FAA issued an NPRM on this subject in March 1993.

What is the status of this rulemaking and when do you expect a final rule to be issued?

[The information follows:]

We expect a rule to be issued within the next few months.

Mr. CARR. The crew pairing NPRM applied only to the major air carriers operating under 14 CFR 121, but the problem reportedly is at least as significant among the regional airlines operating under 14 CFR 135. What is being done, if anything, to address the problem in this latter segment of common carriers?

[The information follows:]

Though this NPRM only addresses part 121 operators, FAA has another rule-making project that will be issued this summer that will apply many of these training qualification experience requirements to operators of Part 135 commuter aircraft.

Mr. CARR. There remains a significant disparity between the pilot qualification and training requirements that apply to the scheduled commuters and those of the major air carriers. In view of the continuing disparity between the fatal accident rate for the commuters and that of the major carriers, what action is FAA taking to upgrade commuter airline pilot qualifications and training requirements?

[The information follows:]

FAA expects to release an NPRM this spring which addresses commuter airline pilot qualifications and training requirements and the "upgrading" of them.

TCAS

Mr. CARR. Pilots and controllers continue to complain about shortcomings in the TCAS system. What action is FAA taking to improve system logic and software?

[The information follows:]

FAA has issued on February 4, 1994, three airworthiness directives (AD) to upgrade TCAS II systems.

AD 94-01-04 requires that all Honeywell TCAS II units be retrofitted to an enhanced 6.04A software configuration before December 31, 1994.

AD 94-01-05 requires that all Allied Signal TCAS II units be retrofitted to an enhanced 6.04A software configuration before December 31, 1994.

AD 94-01-06 requires that all Collins TCAS II units be retrofitted to an enhanced 6.04A software configuration before December 31, 1994.

We expect the sum of these actions will address all serious concerns raised by pilots and controllers.

Mr. CARR. What action is being taken to improve pilot and controller training and operational procedures regarding TCAS?

[The information follows:]

Pilots are being trained through the following means:

In August 1993, FAA published a revised Air Carrier Operational Approval and Use of TCAS II Advisory Circular. It bolstered pilot interactive training requirements and updated TCAS operational procedures. This advisory circular is again being updated for publication in January of 1995.

A rulemaking initiative to require pilot TCAS training in flight simulators is in process.

FAAS Alert Bulletins and Advisory Notices are electronically transmitted informing air carriers about current TCAS problems, procedures and policy.

A flight Standards Information Bulletin was published this April alerting pilots to concerns related to "X-over Resolution Alerts" and provided suggested procedures for reducing them.

We believe these training and rulemaking initiatives, coupled with mandatory changes to TCAS hardware which are to be completed this year, will substantially eliminate pilot and controller complaints about TCAS.

The FAA required a mandatory briefing on TCAS titled "Introduction to TCAS" in March 1990 coincident with the installation of the TCAS system. Periodic TCAS update newsletters are required reading for the controller workforce. Selected sites received additional TCAS briefings sponsored by the FAA's Research and Development Service and the Office of Air Traffic System Effectiveness.

The FAA has developed a 25-minute TCAS video tape, supplemented by a Cadre training course, to provide all radar certified controllers with a thorough and comprehensive briefing that explains the operation of TCAS and the roles and responsibilities of controllers and flightcrews in responding to TCAS resolution advisory alerts. A significant portion of the radar controller workforce has already received this briefing.

GSA RENTAL CARS

Mr. CARR. In a recent report, the Inspector General claimed that the FAA is wasting approximately \$4,400,000 a year by leasing too many vehicles. They found that 64 percent of your leased vehicles were underutilized, according to GSA guidelines. What is your response to the IG's findings?

[The information follows:]

The estimated \$4,400,000 annual operating savings which the Inspector General (IG) report claims could occur with the use of short-term commercial rentals and/or privately owned vehicles (POV) in lieu of GSA leased vehicles is overstated. The FAA has unique, special-purpose vehicle needs which were not considered separately in the IG report.

About 60 percent of the FAA GSA motor vehicle fleet require special purpose motor equipment or are located at remote facilities. Special purpose motor equipment includes 5-ton trucks, dozers, graders, snow removal equipment, vehicles with

communications equipment, etc. The IG findings are skewed by grouping these special purpose motor vehicles with sedans and station wagons.

Only 40 percent of the FAA motor vehicle fleet is classified as sedans or station wagons. Inadequately prepared retention justifications were misleading to the IG further inflating the potential savings. The FAA, in cooperation with the IG, is re-evaluating the adequacy and correctness of the justifications which are currently on file. Once this is completed, vehicles which still cannot be justified for retention will be turned in.

Information contained in a Presidential Council on Management Initiatives Study of POV Use indicates that use of POVs for Government business purposes would change the classification of an employee's vehicle insurance policy resulting in premium increases of approximately 25 percent, which the FAA would be expected to pay. Also, the Government cannot require an employee use a POV for official purposes unless use of such has been made a condition of employment. For bargaining unit employees (the majority of prospective drivers in the FAA), mandating POV use would have to be negotiated in union contracts as a change in working conditions. If this were successfully negotiated, it would result in increased costs to the Government to install special purpose equipment in POVs, plus the added insurance costs addressed above. Further complicating this issue is the fact that security policies at certain airports do not permit POV access to restricted areas under any circumstances.

AIRCRAFT SEPARATION

Mr. CARR. The Safety Board recently issued safety recommendations to the FAA on aircraft separation for avoiding vortex turbulence. Has the FAA studied the impact of such actions on airport capacity and aircraft delays, and if the impact were significant, what alternatives could be explored to reduce this hazard?

[The information follows:]

The NTSB recommendations are sweeping in nature and would obviously have a significant effect on the capacity of the National Airspace System (NAS). Several of the Board's recommendations are already incorporated in the current operating procedures and FAA has taken steps to increase awareness of those requirements. FAA is currently formulating its response to the Board and will make a diligent effort to accommodate the spirit and intent of their recommendations without placing unreasonable or unrealistic restrictions on flight operations.

CONTRACT TOWER PROGRAM

Mr. CARR. Last year, the Senate directed that airports such as Aberdeen, South Dakota be included in the contract tower program. My understanding is that, as of last September, there was no building at Aberdeen Airport that could meet FAA and OSHA standards as a control tower, and the level of activity at that airport was so light that, even under the contract tower program, the benefit-cost ratio for a tower at that location was only .12. In other words, costs outweigh benefits by 8 to 1.

Is this data still accurate, and if it is, what are the FAA's current plans for a contract tower at Aberdeen, South Dakota?

[The information follows:]

An updated benefit/cost (B/C) analysis evaluating air traffic requirements at Aberdeen, South Dakota, was completed on March 18, 1994. The analysis reflected a B/C ratio of 0.13 when measured against contract tower establishment criteria. Additionally, it was calculated that in order for Aberdeen Airport to meet B/C criteria with a ratio of 1.0 the air traffic activity would need to increase from the current estimate of 33,000 operations per year to 142,000 annual operations.

In that Aberdeen Airport does not currently meet B/C criteria, the FAA cannot support the establishment of federally funded contract air traffic control services.

The FAA is able to provide assistance to the airport authority in other ways however. Should the Aberdeen Airport Authority consider establishing a non-Federal control tower operation, the FAA would be willing to work with the authority to provide information such as: control tower design recommendations, equipment require-

ments and frequency selections. Also the FAA would certify the non-Federal controllers which would work at the tower. FAA will also monitor air traffic activity at Aberdeen and will initiate appropriate planning when establishment criteria are met and budgetary considerations allow.

LORAN-C TRANSITION POLICY

Mr. CARR. Obviously, there is strong support for satellite technology in air traffic control. At the same time, the Federal Government and the user community have made substantial investments in a variety of well proven navigation systems over the years.

For example, there are over a million users of the Loran-C system. What is the FAA's policy with regard to Loran-C during the transition to satellite technology over the next 10 to 15 years?

[The information follows:]

The Federal Aviation Administration (FAA) does indeed support the continued operation of the Loran-C system over the next 10-15 years as we transition to satellite technology. The system has enjoyed wide use and high praise in the general aviation (GA) community, which includes about 130,000 aircraft equipped with Loran-C. The current Federal policy for Loran-C, as stated in the 1992 Federal Radionavigation Plan (FRP), envisions continued operation of the Loran-C system through the year 2015.

AUGMENTING GSP WITH LORAN-C

Mr. CARR. We understand that an RTCA working group has done some work, concluding that GPS augmented with Loran-C is emerging as one very good system navigation option for the future because the technologies are so compatible.

Does FAA support and agree with the findings of the RTCA SC-159 GPS/Loran working group?

[The information follows:]

The FAA is an active participant in the efforts of SC-159 to develop a Minimum Operational Performance Standard (MOPS) for a navigation receiver capable of utilizing GPS and Loran-C signals. When the MOPS is approved by the RTCA (projected publication date is December 1994), we will work with the users and the avionics industry to develop certification standards based on the MOPS. The avionics industry and the users will ultimately determine the desirability of a Loran/GPS receiver.

LORAN-C FOR WEATHER-BALLOON TRACKING

Mr. CARR. Loran-C is utilized as an inexpensive means for tracking weather balloon carried sensors which collect weather data very important in providing status reports and predictions to pilots. I know this is the domain of the Weather Service, but isn't this service important to the meteorological community? What happens to the service in the future if Loran isn't around?

[The information follows:]

Both the Loran-C and Omega radionavigation systems are used extensively by the weather community. That community is planning to transition to GPS technology, but will require some time to transition, economically, to GPS. The U.S. Air Force Weather Directorate believes that premature termination of these radionavigation services could result in huge gaps in the collection of upper air data, e.g., all of Canada and Mexico and 75 percent of Europe. The weather service program is critical to aviation weather forecasts, and both Loran-C and Omega must be retained at least until cost-effective replacements can be developed.

Mr. CARR. If the answer is that GPS capability will be provided, what information can you give us about the costs that are now

being incurred as compared with the costs that might be anticipated in conjunction with a GPS capability?

[The information follows:]

The current cost of radionavigation retransmission using Loran-C or Omega is low enough that the hundreds of thousands of balloon launches per year can be readily accommodated. No GPS unit has yet been developed for this purpose, and it will be some time before the cost of a GPS sensor will approach that of the current systems. Ultimately, GPS costs for weather-balloon reporting may drop to levels similar to those currently enjoyed with Loran and Omega. The critical factor is time. The weather community anticipates a transition to GPS sensors prior to the 2005 Omega phase-out date published in the 1992 Federal Radionavigation Plan. This is well before the similarly published Loran-C phase-out date of 2015.

SPRINT PROTEST AGAINST GOVERNMENT SYSTEMS INC.

Mr. CARR. It was reported in Federal Computer Week in March 1994 that the GSA Board of Contract Appeals had upheld a protest by Sprint against the FAA's award of a \$23.6 million contract to Government Systems, Inc. for networking equipment and services. What specific program was the subject of this bid protest, and how does GSBICA's ruling affect your budget?

[The information follows:]

The contract that was the subject of the protest is the Agency Data Transmission Network 2000 (ADTN2000). As a result of the GSBICA decision, the FAA has issued an amendment to the ADTN2000 request for procurement (RFP) to address the issues raised by the protest. Contract award based on the revised RFP is planned for late fiscal year 1994. There will be no impact on the budget.

CONTRACTS—TRACON FACILITIES

Mr. CARR. The FAA issued contract number DTFA01-89-C-0058 on September 29, 1989. Modification 13 to that contract was awarded on June 28, 1991 for \$156,105,007. The award amount was in stark contrast to the FAA recommended price of \$113,319,028, a difference of \$42,785,979.

What program is referred to in this contract and why was there such a great difference between what the FAA believed was a fair price and what you agreed to pay?

[The information follows:]

Contract Number DTFA01-89-C-00058 provided additional hardware and enhanced software capability to 62 ARTS IIIA terminal radar approach control (TRACON) facilities to: (a) accommodate Congressionally-mandated mode-c intruder functionality (MCI); and (b) extend the useful life of aging ARTS IIIA TRACON's pending implementation of the advanced automation systems (AAS) at those facilities.

We are unaware of the source of this \$113,319,028 figure. The contractor's proposal was \$238,029,986. DCAA recommended \$208,765,184. The FAA Contracting Officer's pre-negotiation objective was \$176,934,045 and the final negotiated amount was \$185,100,000 (a base amount of \$156,105,007 and options totalling \$28,999,993). The difference between the FAA's objective (\$176,934,000) and the final negotiated amount (\$185,100,000) resulted from additional requirements (26 Full Digital ARTS Displays) added during negotiations.

AIRCRAFT PURCHASE LOAN GUARANTEE PROGRAM

Mr. CARR. What would be the effect if the bill language proposed for this program were not approved for fiscal year 1995?

[The information follows:]

If the proposed language were not approved, any default costs would have to come from funding within the operations appropriation, reducing funding for traditional activities (such as change of station moves and stocks and stores funding) to the de-

gree it was funded. The Operations Appropriation language begins, "For necessary expenses of the Federal Aviation, not otherwise provided for . . ." If the proposed Aircraft Purchase Loan Guarantee Program language were not approved, fiscal year 1995 default costs would not be "otherwise provided for", so that Operations would be the only source of potential funds for those costs.

AIRCRAFT PURCHASE LOAN GUARANTEE PROGRAM

Mr. CARR. When was the last time the FAA requested the appropriate authorizing committees of the Congress to include the authorizing language in this portion of the appropriations bill in the next aviation reauthorization, where it belongs?

[The information follows:]

The Airline Deregulation Act (Public Law 95-504) re-authorized the guarantee of loans for a period of five years beginning on October 24, 1978. This was the last reauthorization of the Aircraft Purchase Loan Guarantee Program. In 1976, the FAA and the Secretary of Transportation strongly recommended that the program be allowed to expire. Records as to the Administration's position on earlier reauthorizations of the program are not available.

The FAA does not request an authorization for funding for Aircraft Purchase Loan Guarantee Program default costs because the authorization is in section of the Act of September 7, 1957, Public Law 85-307; 71 Stat. 629; 49 U.S.C. App. 1324 Note (The Act). That section authorizes payments to lenders and for administrative expenses on account of loan guarantees to be made from funds appropriated to the Department of Commerce. The Department of Transportation succeeded the Department of Commerce in administration of the Act under terms of the Department of Transportation Act of 1967, PL 89-670, 80 STAT, 931; 937.

GRANTS IN AID FOR AIRPORTS—UNDERUTILIZED AIRPORTS

Mr. CARR. Please update the list of underutilized airports shown on page 646 of last year's hearing record.

[The information follows:]

The draft 1994 Aviation Capacity Enhancement Plan, Table 6-1, Preliminary List of Airports Located Near the 23 Delay-Problem Airports follows.

The airports listed are not necessarily "underutilized." Many of them are very busy primary, commercial service, relievers, or general aviation airports. An economic opportunity may exist if the priorities of the local political subdivision, the availability of a passenger market, and other contributing factors are such that some of the traffic or passengers may be enticed to migrate away from the congestion associated with delay-problem airports.

Table 6-1. Preliminary List of Airports Located Near the 23 Delay-Problem Airports

Delay-problem Airport ¹		Supplemental Airport	Delay-problem Airport ¹		Supplemental Airport
Atlanta Hartsfield	ATL	Athens Macon Columbus (100 mi) Chattanooga, TN (100 mi)	Minneapolis	MSP	St. Paul (Downtown) Mankato (60 mi) Rochester (77 mi) Eau Claire, WI (85 mi)
Boston	BOS	Manchester, NH Portsmouth, NH Portland, ME Providence, RI Worcester, MA Bedford, MA	New York	JFK	Farmingdale Garden City Islip Long Island Stewart/Newburgh (60 mi) White Plains
Charlotte	CLT	Hickory Greensboro (90 mi) Greer, SC (90 mi) Winston-Salem (60 mi)	Newark	EWR	Trenton Stewart/Newburgh, NY (60 mi) White Plains, NY
Chicago O'Hare	ORD	Aurora Chicago Midway Meigs Field Rockford Waukegan West Chicago (Du Page) Wheeling Gary, IN NAS Glenview	Orlando	MCO	Daytona Beach Ft. Pierce (100 mi) Melbourne (60 mi) Tampa (70 mi) Vero Beach (90 mi)
Dallas-Ft. Worth	DFW	NAS Fort Worth, Joint Reserve Base (formerly Carswell AFB) Dallas-Love Field Denton Fort Worth Alliance Fort Worth Meacham McKinney Mesquite Waco (80 mi)	Philadelphia	PHL	Allentown Lancaster (70 mi) Reading (60 mi) Willow Grove NAS Trenton, NJ Wilmington, DE
Denver	DEN	Colorado Springs (80 mi)	Phoenix	PHX	Prescott (80 mi) Williams AFB
Detroit	DTW	Detroit City Flint Pontiac Lansing (80 mi) Toledo, OH (60 mi) Selfridge ANG Willow Run Windsor, Ontario, Canada	Pittsburgh	PIT	Johnstown Latrobe Morgantown, WV (60 mi)
Honolulu	HNL	Kailua	San Francisco	SFO	Concord Oakland San Jose Santa Rosa Moffett Field NAS Hamilton Field
Houston	IAH	Corpus Christi Ellington Galveston Houston Hobby Ontario Oxnard Palmdale	St. Louis	STL	Scott AFB
Los Angeles	LAX	Burbank Long Beach Norton AFB Ontario Oxnard Palmdale	Seattle	SEA	Everett/Paine Field McChord AFB
Miami	MIA	Ft. Lauderdale	Washington	DCA	Baltimore, MD Hagerstown, MD (60 mi) Charlottesville, VA (100 mi) Richmond, VA (100 mi) Andrews AFB
			Washington	IAD	Baltimore, MD Hagerstown, MD (60 mi) Charlottesville, VA (100 mi) Richmond, VA (100 mi) Andrews AFB

1. Airports having greater than 20,000 hours of delay for 1990 as reported by FAA Office of Policy and Plans.

DRAFT

JOINT-USE MILITARY AIRFIELDS

Mr. CARR. Please update the listing of military airfields with joint use agreements as found on page 647 of last year's hearing record.

[The information follows:]

JOINT-USE MILITARY AIRFIELDS

Air Force	Army	Navy	Marines
AF Plant 42, Palmdale, CA	Libby AAF (Ft. Huachuca)	ALF Fort Island, Honolulu, HI	MCAS Yuma, AZ
Barter Island Dew Site, AK	Sierra Vista, AZ	NAS Bermuda	
Charleston, AFB, SC	Dillingham Waialua, HI	NAS Agana, Guam	
Dover AFB, DE	Sherman AAF (Ft. Leavenworth), KS		
Eglin AFB, Valparaiso, FL	Grayling AAF, (Camp Grayling), MI		
Pt. Lay Dew Site, AK	Blackstone AAF, (Ft. Pickett), VA		
Rickenbacker ANGB, Columbus OH	Sparta/McCoy AAF, (Ft. McCoy, WI)		
Scott AFB, Belleville, IL	Camp Guernsey, WY		
Sheppard AFB, Wichita Falls, TX			
Westover ARB, Chicapee, MA			

Definition of Joint Use: An installation where written agreement between the military department and a local government agency authorizes use of the military runways for a public airport.

Pending Joint use agreements: Biggs AAF (Ft. Bliss) El Paso, TX, Phillips AAF, (Aberdeen Proving Ground), MD.

An agreement was also pending with NAS Memphis, TN, but the airfield at NAS Memphis was named for closure by the 1993 Defense Base Closure and Realignment Commission. Rickenbacker ANGB joint use agreement will be cancelled; disposal of the base is completed by the Air Force.

Note: There is commercial airline service at Forney AAF (Ft. Leonard Wood), MO, Polk AAF, LA, Amchitka AAF, AK, Allen AAF (Delta Junction), AK Fort Wainwright AAF, AK, Wheelersack AAF, NY, Campbell AAF, KY, Gray AAF, WA, Lawson AAF (Fort Benning), GA, and Eareckson AFS (formerly Shemya), AK authorized by permit/lease.
Formal joint use agreements are being pursued with Biggs AAF, TX, Forney AAF, MO and Seneca AAF, NY.

LISTING OF AIRPORTS WITH CAPACITY PROBLEMS

Mr. CARR. Please also update the listing of airports with capacity problems as shown on page 648 of last year's hearing record.

[The information follows:]

The draft 1994 Aviation Capacity Enhancement Plan, Table 1-5, 1992 Actual and 2002 Forecast Air Carrier Delay hours, follows.

1992 Actual and 2002 Forecast Air Carrier Delay Hours

Annual Aircraft Delay in Excess of 20,000 Hours					
1992		2002			
Chicago O'Hare	ORD	Chicago O'Hare	ORD	Washington National	DCA
Atlanta Hartsfield	ATL	Dallas-Ft. Worth	DFW	San Diego	SAN
Dallas-Ft. Worth	DFW	Atlanta Hartsfield	ATL	Charlotte-Douglas	CLT
Los Angeles	LAX	San Francisco	SFO	Cincinnati	CVG
Newark	EWK	Washington Dulles	IAD	Honolulu	HNL
San Francisco	SFO	Newark	EWK	Houston	IAH
Boston	BOS	St. Louis	STL	Las Vegas	LAS
New York John F. Kennedy	JFK	Los Angeles	LAX	Windsor Locks	BDL
St. Louis	STL	Phoenix	PHX	Memphis	MEM
Phoenix	PHX	New York John F. Kennedy	JFK	Baltimore Washington	BWI
Miami	MIA	Miami	MIA	Ontario	ONT
Philadelphia	PHL	Philadelphia	PHL	Nashville	BNA
Washington National	DCA	Boston	BOS	Raleigh-Durham	RDU
Pittsburgh	PIT	Detroit	DTW	Seattle-Tacoma	SEA
Detroit	DTW	Pittsburgh	PIT	Salt Lake City	SLC
Orlando	MCO	New York La Guardia	LGA		
Minneapolis	MSP	Orlando	MCO		
Charlotte	CLT	Minneapolis	MSP		
Denver Stapleton	DEN				
Honolulu	HNL				
Houston	IAH				
Seattle-Tacoma	SEA				
New York La Guardia	LGA				

1993 DISCRETIONARY GRANTS

Mr. CARR. Please provide a listing of fiscal year 1993 discretionary grants in excess of \$3 million, similar in format to that shown on pages 671-687 of last year's hearing record.

[The information follows:]

PROGRAM: ARPB01
 RUN DATE: 04/05/94

RUN TIME: 10:17:23
 AIRPORT IMPROVEMENT PROGRAM
 DISCRETIONARY FUNDS

PAGE: 1

FISCAL YEAR(S) 93
 FUNDING LIMIT GT 003000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
ALABAMA			
BIRMINGHAM BIRMINGHAM	REMOVE OBSTRUCTIONS; INSTALL TAXIWAY SIGNS; EXTEND AND LIGHT RUNWAY; INSTALL PARTIAL INSTRUMENT APPROACH AID AND FENCING; RELOCATE PUBLIC ROAD; ACQUIRE LAND FOR DEVELOPMENT (PHASE I)	\$3,622,185	\$5,786,111
	SUB TOTALS	\$3,622,185	\$5,786,111
ARIZONA			
PHOENIX PHOENIX SKY HARBOR INTERNATIONAL	ACQUIRE LAND FOR NOISE COMPATIBILITY; PROVIDE RELOCATION ASSISTANCE (NOISE LAND)	\$5,000,000	\$5,000,000
	SUB TOTALS	\$5,000,000	\$5,000,000
CALIFORNIA			
CHINO CHINO	CONSTRUCT RUNWAY (DESIGN AND SITE PREPARATION)	\$4,000,000	\$4,000,000
ONTARIO ONTARIO INTERNATIONAL	CONSTRUCT APRON	\$4,000,000	\$11,455,425
SAN FRANCISCO SAN FRANCISCO INTERNATIONAL	RECONSTRUCT AND OVERLAY RUNWAY; EXTEND, RECONSTRUCT, OVERLAY AND LIGHT TAXIWAYS; CONSTRUCT APRONS	\$10,955,217	\$22,922,689

PROGRAM: ARPB01
 RUN DATE: 04/05/94

RUN TIME: 10:18:34
 AIRPORT IMPROVEMENT PROGRAM
 DISCRETIONARY FUNDS

PAGE: 2

FISCAL YEAR(S) 93
 FUNDING LIMIT GT 003000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
	SUB TOTALS	\$18,955,217	\$38,378,114
COLORADO			
DENVER DENVER INTERNATIONAL (NEW)	CONSTRUCT RUNWAYS, TAXIWAYS, APRON AND AUTOMATED GROUND TRANSPORTATION SYSTEM; ACQUIRE LAND FOR DEVELOPMENT (PHASE III)	\$32,000,000	\$37,882,441
DENVER DENVER INTERNATIONAL (NEW)	CONSTRUCT RUNWAY AND TAXIWAYS (SITE PREPARATION)	\$10,000,000	\$10,000,000
	SUB TOTALS	\$42,000,000	\$47,882,441
FLORIDA			
FORT MYERS SOUTHWEST FLORIDA INTERNATIONAL	EXTEND AND LIGHT RUNWAY AND TAXIWAY	\$5,167,000	\$8,206,110
MIAMI MIAMI INTERNATIONAL	INSTALL TAXIWAY SIGNS; CONSTRUCT AIRFIELD LIGHTING VAULT	\$4,268,000	\$4,268,000
MIAMI OPA LOCKA	RECONSTRUCT, EXTEND, GROOVE AND LIGHT RUNWAY; CONSTRUCT AND LIGHT TAXIWAY; INSTALL TAXIWAY SIGNS AND VISUAL APPROACH AID	\$6,969,851	\$7,420,457

PROGRAM: ARPB01

RUN DATE: 04/05/94

RUN TIME: 10:19:07

PAGE: 3

AIRPORT IMPROVEMENT PROGRAM
DISCRETIONARY FUNDSFISCAL YEAR(S) 93
FUNDING LIMIT GT 0030000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
ORLANDO ORLANDO INTERNATIONAL	REHABILITATE APRON; IMPROVE AIRFIELD LIGHTING SYSTEM	\$17,463,750	\$17,463,750
SARASOTA SARASOTA-BRADENTON INTERNATIONAL	CONDUCT MASTER PLAN UPDATE (DRAINAGE STUDY); INSTALL TAXIWAY SIGNS; ACQUIRE LAND FOR NOISE COMPATIBILITY; PROVIDE RELOCATION ASSISTANCE (NOISE LAND); INSTALL FENCING	\$6,073,451	\$6,240,887
	SUB TOTALS	\$39,942,052	\$43,599,204
GUAM -----			
AGANA AGANA NAS	CONSTRUCT AND LIGHT TAXIWAY, APRON AND SERVICE ROAD	\$4,000,000	\$4,000,000
AGANA AGANA NAS	CONSTRUCT AND LIGHT TAXIWAY AND APRON	\$5,400,000	\$5,400,000
	SUB TOTALS	\$9,400,000	\$9,400,000
ILLINOIS -----			
STATE OF ILLINOIS BLOCK GRANT	VARIOUS AIRPORT DEVELOPMENT PROJECTS AT NONPRIMARY AIRPORTS UNDER THE STATE BLOCK GRANT PILOT PROGRAM	\$9,574,241	\$16,100,000
STATE OF ILLINOIS BLOCK GRANT	VARIOUS AIRPORT DEVELOPMENT PROJECTS AT NONPRIMARY AIRPORTS UNDER THE STATE BLOCK GRANT PILOT PROGRAM	\$4,533,274	\$4,533,274

PROGRAM: ARPB01
 RUN DATE: 04/05/94

RUN TIME: 10:19:41
 AIRPORT IMPROVEMENT PROGRAM
 DISCRETIONARY FUNDS

PAGE: 4

FISCAL YEAR(S) 93
 FUNDING LIMIT GT 003000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
STATE OF ILLINOIS BLOCK GRANT	VARIOUS AIRPORT DEVELOPMENT PROJECTS AT NONPRIMARY AIRPORTS UNDER THE STATE BLOCK GRANT PILOT PROGRAM	\$3,400,000	\$3,400,000
BELLEVILLE SCOTT AFB	EXTEND RUNWAY; CONSTRUCT TAXIWAY, APRON, ROADS AND VAULT; INSTALL VISUAL APPROACH AIDS, FENCING AND SIGNS; ACQUIRE AIRCRAFT RESCUE AND FIRE FIGHTING AND SNOW REMOVAL EQUIPMENT; ACQUIRE LAND FOR APPROACHES; PROVIDE RELOCATION ASSISTANCE (PHASE I)	\$14,000,000	\$14,000,000
BLOOMINGTON/NORMAL BLOOMINGTON/NORMAL	INSTALL TAXIWAY SIGNS; CONSTRUCT RUNWAY; ACQUIRE LAND FOR APPROACHES	\$3,906,430	\$4,078,800
CHICAGO CHICAGO O'HARE INTERNATIONAL	SOUNDPROOF SCHOOL (MANNHEIM JUNIOR HIGH, MELROSE PARK)	\$4,092,000	\$4,092,000
CHICAGO/WEST CHICAGO DUPAGE	CONSTRUCT AND LIGHT RUNWAYS, TAXIWAYS AND APRON; RELOCATE UTILITIES, PUBLIC ROAD AND RAILROAD TRACK; ACQUIRE LAND FOR DEVELOPMENT AND APPROACHES (PHASE VII)	\$8,019,700	\$8,019,700
	SUB TOTALS	\$47,525,645	\$54,223,774
INDIANA			

INDIANAPOLIS INDIANAPOLIS INTERNATIONAL	REMOVE OBSTRUCTIONS; CONSTRUCT RUNWAY (DESIGN AND ENVIRONMENTAL MITIGATION); ACQUIRE LAND FOR ENVIRONMENTAL MITIGATION	\$4,000,000	\$8,845,899

PROGRAM: ARPB01
 RUN DATE: 04/05/94

RUN TIME: 10:19:53
 AIRPORT IMPROVEMENT PROGRAM
 DISCRETIONARY FUNDS

PAGE: 5

FISCAL YEAR(S) 93
 FUNDING LIMIT GT 003000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
INDIANAPOLIS INDIANAPOLIS INTERNATIONAL	ACQUIRE LAND FOR NOISE COMPATIBILITY; PROVIDE RELOCATION ASSISTANCE (NOISE LAND)	\$6,076,000	\$6,076,000
INDIANAPOLIS INDIANAPOLIS INTERNATIONAL	INSTALL TAXIWAY SIGNS; CONSTRUCT AIRCRAFT RESCUE AND FIRE FIGHTING EQUIPMENT BUILDING; CONSTRUCT RUNWAY AND TAXIWAY; INSTALL VISUAL APPROACH AIDS AND INSTRUMENT LANDING SYSTEM; RELOCATE PUBLIC ROAD; ACQUIRE LAND FOR ENVIRONMENTAL MITIGATION; PROVIDE	\$4,000,000	\$4,000,000
	SUB TOTALS	\$14,076,000	\$18,921,899
IOWA -----			
ANKENY NEW	CONSTRUCT AND LIGHT RUNWAY, TAXIWAY AND APRON; INSTALL VISUAL APPROACH AIDS AND FENCING; ACQUIRE LAND FOR DEVELOPMENT	\$4,450,000	\$4,450,000
	SUB TOTALS	\$4,450,000	\$4,450,000
KENTUCKY -----			
COVINGTON CINCINNATI/NORTHERN KENTUCKY INTERNATIONAL	ACQUIRE ARFF, SNOW REMOVAL AND NOISE MONITORING EQUIPMENT; INSTALL SECURITY FENCING AND AIRFIELD SIGNS; EXTEND AND RECONSTRUCT TAXIWAYS; CONSTRUCT APRONS; IMPROVE TERMINAL BUILDING; SOUNDPROOF SCHOOLS AND RESIDENCES; ACQUIRE LAND FOR NOISE COMPATIBIL	\$8,780,413	\$13,950,000

PROGRAM: ARPB01
 RUN DATE: 04/05/94

RUN TIME: 10:20:16
 AIRPORT IMPROVEMENT PROGRAM
 DISCRETIONARY FUNDS

PAGE: 6

FISCAL YEAR(S) 93
 FUNDING LIMIT GT 003000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
LOUISVILLE STANDIFORD FIELD	CONSTRUCT RUNWAYS; ACQUIRE LAND FOR DEVELOPMENT; PROVIDE RELOCATION ASSISTANCE (PHASE II)	\$9,503,342	\$15,300,000
	SUB TOTALS	\$18,283,755	\$29,250,000

LOUISIANA

NEW ORLEANS NEW ORLEANS INTERNATIONAL/MOISA T FIELD	INSTALL SECURITY FENCING; REHABILITATE RUNWAYS AND TAXIWAYS; CONSTRUCT TAXIWAY, APRONS, ACCESS ROADS AND SERVICE ROAD; INSTALL AIRFIELD LIGHTING CONTROL SYSTEM; ACQUIRE LAND FOR DEVELOPMENT (PHASE II)	\$9,902,695	\$13,600,000
	SUB TOTALS	\$9,902,695	\$13,600,000

MASSACHUSETTS

BOSTON GENERAL EDWARD L. LOGAN INTERNATIONAL	SOUNDPROOF RESIDENCES (APPROXIMATELY 300)	\$7,000,000	\$7,000,000
	SUB TOTALS	\$7,000,000	\$7,000,000

MICHIGAN

STATE OF MICHIGAN BLOCK GRANT	VARIOUS AIRPORT DEVELOPMENT PROJECTS AT NONPRIMARY AIRPORTS UNDER THE STATE BLOCK GRANT PROGRAM	\$10,944,636	\$17,956,673
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PROGRAM: ARPB01
 RUN DATE: 04/05/94

RUN TIME: 10:20:49
 AIRPORT IMPROVEMENT PROGRAM
 DISCRETIONARY FUNDS

PAGE: 7

FISCAL YEAR(S) 93
 FUNDING LIMIT GT 003000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
DETROIT DETROIT METROPOLITAN-WAYNE COUNTY	CONSTRUCT AND LIGHT RUNWAYS, TAXIWAYS AND APRONS; REHABILITATE AND INSTALL RUNWAY LIGHTING, INSTRUMENT APPROACH AIDS, VISUAL APPROACH AIDS AND TAXIWAY SIGNS; ACQUIRE LAND FOR DEVELOPMENT AND APPROACHES; PROVIDE RELOCATION ASSISTANCE; CONSTRUCT WETLAN	\$10,000,000	\$14,351,595
DETROIT DETROIT METROPOLITAN-WAYNE COUNTY	ACQUIRE LAND FOR NOISE COMPATIBILITY; PROVIDE RELOCATION ASSISTANCE (NOISE LAND)	\$4,228,298	\$4,228,298
	SUB TOTALS	\$25,172,934	\$36,536,566
MINNESOTA -----			
DULUTH DULUTH INTERNATIONAL	CONSTRUCT AIRCRAFT RESCUE AND FIRE FIGHTING TRAINING FACILITY	\$5,299,625	\$5,299,625
MINNEAPOLIS MINNEAPOLIS-ST PAUL INTERNATIONAL	SOUNDPROOF RESIDENCES; ACQUIRE LAND FOR NOISE COMPATIBILITY; PROVIDE RELOCATION ASSISTANCE (NOISE LAND)	\$4,733,223	\$4,733,223
MINNEAPOLIS MINNEAPOLIS-ST PAUL INTERNATIONAL	ACQUIRE LAND FOR NOISE COMPATIBILITY; PROVIDE RELOCATION ASSISTANCE (NOISE LAND)	\$6,946,489	\$12,000,000

PROGRAM: ARPB01
 RUN DATE: 04/05/94

RUN TIME: 10:21:02
 AIRPORT IMPROVEMENT PROGRAM
 DISCRETIONARY FUNDS

PAGE: 8

FISCAL YEAR(S) 93
 FUNDING LIMIT GT 003000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
	SUB TOTALS	\$16,979,337	\$22,032,848
MISSOURI			

STATE OF MISSOURI BLOCK GRANT	VARIOUS AIRPORT DEVELOPMENT PROJECTS AT NONPRIMARY AIRPORTS UNDER THE STATE BLOCK GRANT PILOT PROGRAM	\$10,270,000	\$14,458,131
ST LOUIS LAMBERT-ST LOUIS INTERNATIONAL	ACQUIRE LAND FOR NOISE COMPATIBILITY	\$8,978,000	\$8,978,000
	SUB TOTALS	\$19,248,000	\$23,436,131
NEBRASKA			

LINCOLN LINCOLN MUNICIPAL	CONSTRUCT DEICING FACILITY; SEAL COAT TAXIWAY; REHABILITATE APRON; ACQUIRE SNOW REMOVAL EQUIPMENT; MODIFY TERMINAL BUILDING; CONSTRUCT SERVICE ROAD; IMPROVE ACCESS ROAD	\$4,000,000	\$4,907,689
	SUB TOTALS	\$4,000,000	\$4,907,689
NEVADA			

LAS VEGAS MC CARRAN INTERNATIONAL	CONSTRUCT AND RECONSTRUCT RUNWAYS AND TAXIWAYS; CONSTRUCT, RECONSTRUCT AND EXPAND APRONS; INSTALL RUNWAY AND TAXIWAY LIGHTING; ACQUIRE LAND FOR DEVELOPMENT; RELOCATE PUBLIC ROAD; IMPROVE DRAINAGE (PHASE V)	\$4,000,000	\$4,000,000

PROGRAM: ARPB01
 RUN DATE: 04/05/94

RUN TIME: 10:21:32
 AIRPORT IMPROVEMENT PROGRAM
 DISCRETIONARY FUNDS

PAGE: 9

FISCAL YEAR(S) 93
 FUNDING LIMIT GT 003000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
RENO RENO CANNON INTERNATIONAL	RECONSTRUCT AND STRENGTHEN RUNWAYS; CONSTRUCT, EXTEND AND LIGHT TAXIWAYS; RECONSTRUCT APRON; INSTALL TAXIWAY SIGNS; IMPROVE ACCESS ROAD AND DRAINAGE; ACQUIRE LAND FOR DEVELOPMENT AND APPROACHES; CONSTRUCT WETLANDS (ENVIRONMENTAL MITIGATION)(PHASE I)	\$4,000,000	\$6,454,528
RENO RENO/STEAD	RECONSTRUCT AND LIGHT RUNWAY	\$3,395,798	\$3,395,798
	SUB TOTALS	\$11,395,798	\$13,850,326
NEW HAMPSHIRE -----			
MANCHESTER MANCHESTER	CONSTRUCT APRON	\$3,650,240	\$3,650,240
MANCHESTER MANCHESTER	CONSTRUCT TERMINAL BUILDING (PHASE II)	\$4,000,000	\$4,000,000
MANCHESTER MANCHESTER	SOUNDPROOF RESIDENCES	\$5,111,727	\$5,111,727
	SUB TOTALS	\$12,761,967	\$12,761,967
NEW JERSEY -----			
NEWARK NEWARK INTERNATIONAL	SOUNDPROOF SCHOOLS (EAST NEWARK PUBLIC AND GROVER CLEVELAND MIDDLE) ELIZABETH, N. J. (PHASE I)	\$3,520,000	\$3,520,000

PROGRAM: ARPB01
 RUN DATE: 04/05/94

RUN TIME: 10:21:49
 AIRPORT IMPROVEMENT PROGRAM
 DISCRETIONARY FUNDS

PAGE: 10

FISCAL YEAR(S) 93
 FUNDING LIMIT GT 003000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
	SUB TOTALS	\$3,520,000	\$3,520,000
NEW MEXICO			
ALBUQUERQUE	INSTALL TAXIWAY SIGNS AND	\$4,100,000	\$7,317,245
ALBUQUERQUE	SECURITY FENCING;		
INTERNATIONAL	REHABILITATE RUNWAY;		
	CONSTRUCT AND RECONSTRUCT		
	TAXIWAYS; CONSTRUCT APRON;		
	INSTALL RUNWAY LIGHTING		
	CONTROLS AND EMERGENCY POWER		
	GENERATOR; CONSTRUCT SERVICE		
	ROAD; IMPROVE DRAINAGE		
	SUB TOTALS	\$4,100,000	\$7,317,245
NEW YORK			
ITHACA	INSTALL TAXIWAY SIGNS; EXTEND	\$3,442,000	\$3,442,000
TOMPKINS COUNTY	RUNWAY AND TAXIWAY; MITIGATE		
	WETLAND FOR RUNWAY AND		
	TAXIWAY EXTENSION; INSTALL		
	VISUAL APPROACH AID AND		
	FENCING		
NEW YORK	CONSTRUCT RUNWAY SAFETY AREA	\$4,000,000	\$4,000,000
LAGUARDIA	(PH II)		
NEWBURGH	EXPAND TERMINAL BUILDING	\$4,000,000	\$4,000,000
STEWART	(PHASE II)		
INTERNATIONAL			

PROGRAM: ARPB01
 RUN DATE: 04/05/94

RUN TIME: 10:22:15
 AIRPORT IMPROVEMENT PROGRAM
 DISCRETIONARY FUNDS

PAGE: 11

FISCAL YEAR(S) 93
 FUNDING LIMIT GT 003000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
WHITE PLAINS WESTCHESTER COUNTY	CONSTRUCT TAXIWAY AND APRON	\$3,144,280	\$3,144,280
	SUB TOTALS	\$14,586,280	\$14,586,280
NORTH CAROLINA -----			
STATE OF NORTH CAROLINA BLOCK GRANT	VARIOUS AIRPORT DEVELOPMENT PROJECTS AT NONPRIMARY AIRPORTS UNDER THE STATE BLOCK GRANT PILOT PROGRAM	\$10,300,000	\$14,637,111
CHARLOTTE CHARLOTTE/DOUGLAS INTERNATIONAL	INSTALL TAXIWAY SIGNS AND RUNWAY LIGHTING CONTROLS; ACQUIRE LAND FOR DEVELOPMENT AND NOISE COMPATIBILITY; PROVIDE RELOCATION ASSISTANCE	\$5,790,000	\$12,996,340
	SUB TOTALS	\$16,090,000	\$27,633,451
NORTHERN MARIANA IS -----			
SAIPAN SAIPAN INTERNATIONAL	EXPAND APRON (PHASE I)	\$7,103,475	\$8,398,299
	SUB TOTALS	\$7,103,475	\$8,398,299
OHIO -----			
TOLEDO TOLEDO EXPRESS	REMOVE OBSTRUCTIONS; ACQUIRE LAND FOR NOISE COMPATIBILITY; PROVIDE RELOCATION ASSISTANCE (NOISE LAND)	\$4,677,926	\$4,677,926

PROGRAM: ARPB01
 RUN DATE: 04/05/94

RUN TIME: 10:22:53
 AIRPORT IMPROVEMENT PROGRAM
 DISCRETIONARY FUNDS

PAGE: 12

FISCAL YEAR(S) 93
 FUNDING LIMIT GT 003000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
	SUB TOTALS	\$4,677,926	\$4,677,926
OKLAHOMA -----			
OKLAHOMA CITY WILL ROGERS WORLD	ACQUIRE LAND FOR NOISE COMPATIBILITY; PROVIDE RELOCATION ASSISTANCE (NOISE LAND)	\$4,006,287	\$4,024,159
TULSA TULSA INTERNATIONAL	ACQUIRE LAND FOR NOISE COMPATIBILITY; PROVIDE RELOCATION ASSISTANCE (NOISE LAND)	\$6,810,267	\$6,810,267
	SUB TOTALS	\$10,816,554	\$10,834,426
OREGON -----			
REDMOND ROBERTS FIELD	RECONSTRUCT AND LIGHT RUNWAY (PHASE I)	\$3,334,602	\$3,801,422
	SUB TOTALS	\$3,334,602	\$3,801,422
PENNSYLVANIA -----			
ERIE ERIE INTERNATIONAL	INSTALL TAXIWAY SIGNS; REHABILITATE RUNWAY AND TAXIWAY	\$4,045,451	\$4,850,000

PROGRAM: ARPB01
 RUN DATE: 04/05/94

RUN TIME: 10:23:20
 AIRPORT IMPROVEMENT PROGRAM
 DISCRETIONARY FUNDS

PAGE: 13

FISCAL YEAR(S) 93
 FUNDING LIMIT GT 003000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
JOHNSTOWN JOHNSTOWN-CAMBRIA COUNTY	CONSTRUCT RUNWAY (PHASE II); REHABILITATE RUNWAY LIGHTING; ACQUIRE LAND FOR DEVELOPMENT (PHASE III)	\$3,830,000	\$4,230,000
PHILADELPHIA PHILADELPHIA INTERNATIONAL	REHABILITATE RUNWAY AND TAXIWAYS	\$10,000,000	\$10,000,000
PITTSBURGH GREATER PITTSBURGH INTERNATIONAL	CONSTRUCT TAXIWAYS AND SERVICE ROAD (PHASE IV); CONSTRUCT APRON (PHASE II)	\$7,000,000	\$7,000,000
	SUB TOTALS	\$24,875,451	\$26,080,000
RHODE ISLAND -----			
PROVIDENCE THEODORE F GREEN STATE	ACQUIRE LAND FOR DEVELOPMENT	\$4,171,089	\$6,500,000
PROVIDENCE THEODORE F GREEN STATE	ACQUIRE LAND FOR NOISE COMPATIBILITY	\$3,631,559	\$3,631,559
	SUB TOTALS	\$7,802,648	\$10,131,559
SOUTH CAROLINA -----			
GREER GREENVILLE-SPARTANB RG	STRENGTHEN RUNWAY	\$5,000,000	\$5,308,027

PROGRAM: ARPB01
 RUN DATE: 04/05/94

RUN TIME: 10:23:41
 AIRPORT IMPROVEMENT PROGRAM
 DISCRETIONARY FUNDS

PAGE: 14

FISCAL YEAR(S) 93
 FUNDING LIMIT GT 003000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
MYRTLE BEACH	ACQUIRE PAVEMENT SWEEPER;	\$3,220,259	\$3,570,008
MYRTLE BEACH AIR	CONSTRUCT TAXIWAYS		
FORCE BASE			
	SUB TOTALS	\$8,220,259	\$8,878,035

TENNESSEE

MEMPHIS	ACQUIRE LAND FOR NOISE	\$5,000,000	\$5,000,000
MEMPHIS	COMPATIBILITY; PROVIDE		
INTERNATIONAL	RELOCATION ASSISTANCE (NOISE LAND)		
NASHVILLE	EXTEND RUNWAY (PHASE II)	\$4,839,631	\$9,000,000
NASHVILLE			
INTERNATIONAL			
NASHVILLE	SOUNDPROOF RESIDENCES;	\$3,500,000	\$3,500,000
NASHVILLE	ACQUIRE LAND FOR NOISE		
INTERNATIONAL	COMPATIBILITY; PROVIDE RELOCATION ASSISTANCE (NOISE LAND)		
	SUB TOTALS	\$13,339,631	\$17,500,000

TEXAS

DALLAS/FORT WORTH	CONSTRUCT RUNWAY (SITE	\$12,500,000	\$12,500,000
DALLAS/FORT WORTH	PREPARATION); ACQUIRE LAND		
INTERNATIONAL	FOR APPROACHES; PROVIDE RELOCATION ASSISTANCE		

PROGRAM: ARPB01
 RUN DATE: 04/05/94

RUN TIME: 10:24:10
 AIRPORT IMPROVEMENT PROGRAM
 DISCRETIONARY FUNDS

PAGE: 15

FISCAL YEAR(S) 93
 FUNDING LIMIT GT 003000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
DALLAS/FORT WORTH DALLAS/FORT WORTH INTERNATIONAL	ACQUIRE LAND FOR NOISE COMPATIBILITY	\$10,000,000	\$10,400,000
	SUB TOTALS	\$22,500,000	\$22,900,000

UTAH

SALT LAKE CITY SALT LAKE CITY INTERNATIONAL	REMOVE OBSTRUCTION	\$7,679,683	\$7,679,683
SALT LAKE CITY SALT LAKE CITY INTERNATIONAL	REMOVE OBSTRUCTION; CONSTRUCT RUNWAY (SITE PREPARATION)	\$7,320,317	\$7,320,317
SALT LAKE CITY SALT LAKE CITY INTERNATIONAL	CONSTRUCT AIRCRAFT RESCUE AND FIRE FIGHTING TRAINING FACILITY	\$6,000,000	\$6,000,000
SALT LAKE CITY SALT LAKE CITY INTERNATIONAL	CONSTRUCT RUNWAY (SITE PREPARATION)	\$3,431,233	\$3,431,233
	SUB TOTALS	\$24,431,233	\$24,431,233

VIRGINIA

WASHINGTON, DC WASHINGTON DULLES INTERNATIONAL	CONSTRUCT AND EXTEND TAXIWAYS; CONSTRUCT APRONS AND ACCESS ROAD	\$5,600,000	\$5,600,000
WASHINGTON, DC WASHINGTON NATIONAL	CONSTRUCT TAXIWAY, APRON AND ACCESS ROADS; EXTEND TAXIWAYS; CONSTRUCT AND REALIGN ACCESS ROADS (PHASE II)	\$13,600,000	\$13,600,000

PROGRAM: ARPB01
 RUN DATE: 04/05/94

RUN TIME: 10:24:43
 AIRPORT IMPROVEMENT PROGRAM
 DISCRETIONARY FUNDS

PAGE: 16

FISCAL YEAR(S) 93
 FUNDING LIMIT GT 003000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
	SUB TOTALS	\$19,200,000	\$19,200,000
WASHINGTON -----			
SEATTLE SEATTLE-TACOMA INTERNATIONAL	RECONSTRUCT RUNWAY; CONSTRUCT RUNWAY SAFETY AREA; CONSTRUCT AND RECONSTRUCT TAXIWAYS	\$3,858,092	\$3,858,092
SEATTLE SEATTLE-TACOMA INTERNATIONAL	SOUNDPROOF RESIDENCES (752 RESIDENCES IN THE SEATTLE-TACOMA AREA); PURCHASE AVIGATION EASEMENTS; PROVIDE TRANSACTION ASSISTANCE	\$9,764,983	\$10,449,549
	SUB TOTALS	\$13,623,075	\$14,307,641
WISCONSIN -----			
STATE OF WISCONSIN BLOCK GRANT	VARIOUS AIRPORT DEVELOPMENT PROJECTS AT NONPRIMARY AIRPORTS UNDER THE STATE BLOCK GRANT PROGRAM	\$3,959,629	\$8,346,402
	SUB TOTALS	\$3,959,629	\$8,346,402
	GRAND TOTALS	\$511,896,348	\$623,560,989

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AIP GRANTS WITH NO OUTLAYS

Mr. CARR. Please update the table on pages 689-691 of last year's hearing record showing AIP grant projects for which obligations were incurred more than two years ago and no cash expenditures have been made.

[The information follows:]

Airport grants more than 2 years old with no payments :

<u>Project</u> <u>Location</u>	<u>Federal</u> <u>Airport</u>	<u>No.</u>	<u>Funds</u>
Cottonwood, Az	Cottonwood	04-91	361,772
Mesa, Az	Falcon Field	04-91	455,300
Scottsdale, Az	Municipal	06-91	300,000
Show Low, Az	Show Low	05-91	1,220,000
Yuma, Az	International	11-91	442,546
Blythe, Ca	Blythe	04-90	784,800
Burbank, Ca	Burbank-Glendale	10-89	5,600,000
Burbank, Ca	Burbank-Glendale	12-91	8,925,060
Carlsbad, Ca	McClellan-Palomar	04-91	171,000
Fresno, Ca	Air Terminal	12-91	3,000,000
Hawthorne, Ca	Municipal	05-90	500,000
Hawthorne, Ca	Municipal	06-91	500,000
Mammoth, Ca	Mammoth-June Lakes	09-91	45,000
Ontario, Ca	International	04-86	3,014,223
Ontario, Ca	International	08-91	5,091,000
Rancho, Ca	French Valley	10-91	750,000
Redlands, Ca	Municipal	03-89	40,000
Redlands, Ca	Municipal	04-91	500,000
San Jose, Ca	Reid-Hillview	02-84	900,000
Santa Barbara, Ca	Municipal	09-91	2,229,241
Santa Barbara, Ca	Municipal	10-91	500,000
Van Nuys, Ca	Van-Nuys	02-89	2,148,300
Van Nuys, Ca	Van-Nuys	03-90	1,149,840
New Haven, Ct	Tweed-New Haven	05-89	1,056,042
Honolulu, Hi	International	11-88	257,066
Honolulu, Hi	International	23-91	1,032,750
Kahului, Hi	Maui	01-89	353,263
Hawi, Hi	Upolu	02-91	635,906
Wilmington, De	Greater Wilmington	07-90	207,000
Bedford, Ma	Hanscom Field	08-90	144,000
Bedford, Ma	Hanscom Field	09-91	443,813
Boston, Ma	International	16-85	1,065,115
Boston, Ma	International	34-89	1,208,106
Clarksville, Md	Howard County	01-91	119,250
Clinton, Md	Hyde Field	05-89	76,500
Leonardtwn, Md	St Marys County	07-91	158,085
Ocean City, Md	Municipal	07-90	200,000
Maryland	State System Plan	S7-91	166,440
Atlantic City, NJ	International	08-90	194,530
Atlantic City, NJ	International	10-91	409,744

Atlantic City, NJ	Municipal (Bader)	02-83	460,201
Caldwell, NJ	Essex County	07-88	1,800,000
Newark, NJ	Municipal	39-91	1,664,000
Battle Mountain, Nv	Lander County	05-91	56,000
Las Vegas, Nv	McCarran	17-91	1,456,500
Albany, NY	Albany County	09-86	793,926
Farmingdale, NY	Republic	06-88	175,000
Farmingdale, NY	Republic	07-88	1,000,000
Farmingdale, NY	Republic	09-91	208,575
Flushing, NY	Flushing	02-91	326,656
Newburgh, NY	Stewart	03-81	457,235
Newburgh, NY	Stewart	05-89	3,237,018
Newburgh, NY	Stewart	07-91	2,209,087
Newburgh, NY	Stewart	08-91	1,230,615
Newburgh, NY	Stewart	09-91	5,000,000
Newburgh, NY	Stewart	10-91	900,000
Newburgh, NY	Stewart	12-91	900,000
New York, NY	JFK	37-90	7,222,714
New York, NY	JFK	38-90	1,200,000
New York, NY	JFK	42-91	2,336,000
New York, NY	JFK	47-91	1,725,000
New York, NY	LaGuardia	21-87	1,000,000
New York, NY	LaGuardia	29-90	960,000
New York, NY	LaGuardia	35-91	800,000
New York, NY	Pan Am Metroport	01-90	270,000
Saratoga Springs, NY	Saratoga County	01-82	291,852
Warwick, NY	Municipal	02-88	23,310
New York	Reg System Plan	R4-90	44,900
New York	Reg System Plan	R5-91	54,080
New York	Reg System Plan	R6-91	15,700
Middletown, Pa	Harrisburg	07-87	62,270
Philadelphia, Pa	International	27-81	637,500
Philadelphia, Pa	International	24-90	1,100,000
Philadelphia, Pa	International	25-90	975,000
Philadelphia, Pa	International	31-91	1,500,000
Philadelphia, Pa	North	06-91	1,800,000
Pittsburgh, Pa	Greater	27-91	446,250
Reading, Pa	Municipal	11-91	45,000
Westchester, Pa	Brandywine	04-88	519,850
Blacksburg, Va	Va Tech	05-88	70,000
Roanoke, Va	Municipal	10-90	927,000
Middlebury, Vt	State	02-91	242,147
Rutland, Vt	State	08-91	164,650

Note: This data is current as of March 31, 1994.

AIP PROJECT SELECTION PROCESS

Mr. CARR. On page 8, you say that you have made immediate changes to the AIP project selection process in fiscal year 1994, in response to the committee's initiative to develop investment criteria. What specific changes were made?

[The information follows:]

The FAA will set cutoff points on the priorities which are determined for all projects to assure that the highest priority projects from a national perspective are funded. Further, FAA will subject high priority capacity projects which require \$10 million or more in discretionary funds to benefit-cost analyses. All requests for letters of intent (LOI) will also be subjected to thorough screenings, including benefit-cost analyses. The FAA will limit consideration of requests for LOI's to airside development at primary or reliever airports.

LETTER OF INTENT POLICY

Mr. CARR. What is the status of FAA's revised letter of intent policy and when does FAA plan to issue the final policy?

[The information follows:]

The FAA has completed the development of a proposed policy for approvals of LOIs and is informally coordinating this with the airport and airline industry. We plan to publish this policy in the Federal Register for general comment with the objective of having a final policy in place for use for fiscal year 1995. For fiscal year 1994 we plan to apply the requirements of our proposed policy to all LOI applicants.

Mr. CARR. How will the new letter of intent policy address the concerns raised by GAO in its recent report?

[The information follows:]

The policy will limit consideration of requests for LOIs to airside development at primary or reliever airports with measurable capacity benefits. The FAA's decision to approve an LOI will also consider a project's benefits and costs. Benefits measured will include annual aircraft delay savings. Further, a sponsor's use of other sources of funding will be considered.

AIP—GOALS AND PERFORMANCE MEASURES

Mr. CARR. What is the status of FAA's efforts to develop goals and performance measures for the AIP as requested by the Congress in 1987, including a goal for increasing system wide capacity that could be used to define a "significant" enhancement to the system?

[The information follows:]

The FAA is in the process of developing goals and performance measures and expects to complete this work by November 30, 1994. These measures will relate directly to the airport system performance factors identified in the National Plan of Integrated Airport Systems and will address capacity constrained airports.

AIP—INVESTMENT CRITERIA

Mr. CARR. What is the status of FAA's efforts to develop investment criteria for AIP projects?

[The information follows:]

The FAA has completed a plan for the establishment of the use of investment criteria for AIP projects in fiscal year 1994. A copy of that plan follows.

AIP INVESTMENT CRITERIA

The FAA is implementing a program to enhance its Airport Investment Program (AIP) investment criteria. This program will be an ongoing one, beginning in FY 1994 with immediate changes to the AIP grant award process, followed by additional reforms in FY 1995 and thereafter. Ultimately, the program will lead to the development of goals and investment criteria for a National Airport System that is fully consistent with the National Transportation System. The following is a detailed description of FAA's program. Table 1 summarizes major milestones and dates.

I. FY 1994 AIP ALLOCATION CRITERIA

1. Preliminary Planning Screen:

- a) A public use airport is eligible to apply for AIP grants if it meets at least one of the following criteria specified in FAA Order 5090.3B:
- Enplanes (or is forecast to enplane within 10 years) 2,500 or more revenue passengers per year and receives scheduled passenger service;
 - Handles at least 25,000 itinerant operations, or 35,000 local operations, of general aviation aircraft per year and relieves a congested airport with at least 250,000 annual enplaned passengers;
 - Has (or is forecast to have within 5 years) at least 10 based aircraft, is publicly owned, and is located 30 minutes or more (average ground travel time) from the nearest alternative airport eligible for AIP funds (special conditions apply to heliports);
 - Serves as a scheduled mail stop of an air carrier transporting mail pursuant to a contract with the U.S. Postal Service;
 - Serves as a permanent base for the Air National Guard or a reserve component of the U.S. Armed Forces; or
 - Meets a significant national interest (established by special written justification or by a benefit-cost analysis).
- b) Airports meeting one or more of the above criteria are eligible for discretionary AIP grants. Funds apportioned in accordance with statutory criteria will be granted for eligible work.

- c) Airports must also satisfy statutory and administrative application and grant condition requirements, including environmental assessment, public hearings where applicable, airport layout plan and airspace approval, and financial preparedness. Proposed airport projects should be supported by comprehensive master planning studies.

2. Prioritization of Discretionary Grants:

- a) FAA regional offices rank all grant applications according to the Priority System defined in Table 2.
- b) The "Special Programs" category targets safety and security items required by regulation or congressional mandate. FAA establishes performance goals for this category which are revised annually to respond to new requirements. FAA has set the following performance goals for FY 1994:
- Install required taxiway guidance signs at 30 airports certificated under FAR Part 139 by January 1995;
 - Acquire rescue/fire fighting equipment at 30 locations where necessary for airports to replace worn equipment and/or meet upgraded index requirements per FAR Part 139;
 - Acquire deicing equipment and/or construct deicing facilities at the six airports forecasted to justify and document these needs; and
 - Clear obstructions in runway protection zones at 15 airports to provide obstacle-free approaches for arriving aircraft.
- c) As a new initiative, FAA headquarters will set cutoff points on project scores to ensure that only the highest priority projects (from a national perspective) are funded. The national cutoff points will be determined by comparing the value of grant applications to the money available for discretionary grants, based on annual obligation limitations and program authorization requirements.

3. Benefit-Cost Analysis of Discretionary Capacity Projects: To ensure that AIP monies are invested wisely, FAA will subject high priority capacity projects (those projects meeting the requirements of sections 1 and 2 above) for which sponsors are seeking large amounts of discretionary funds (grants of \$10 million or more) to a benefit-cost analysis. This benefit-cost analysis will also represent an important step by FAA to comply with the new Executive Order, "Principles for Federal Infrastructure Investments."

For each such request of discretionary monies of \$10 million or more for capacity projects, FAA will simulate traffic flow at the existing airport to determine the hours of annual flight delay that would be prevented by the project in question. FAA will analyze the project's effects on the local and (where possible) the overall national air transportation system in accordance with established agency modeling capabilities.

The proposed capacity improvements will be modeled in terms of annual delay cost savings for three activity levels: current levels; intermediate-term levels (5 to 10 years out); and long-term levels (10 to 20 years out). Delay savings will be measured in hours and converted to monetary terms using aircraft operating costs and the value of air passenger time. Benefits for activity levels falling between these three reference levels will be estimated through interpolation. Data on future activity levels will be taken from the FAA Terminal Area Forecast, the Airport Master Plan, or the Final Environmental Impact Statement (whichever is most recent).

The data requirements will be specific to airport/terminal airspace and will be collected by FAA. The data will include (but not be limited to): the approved Airport Layout Plan; type of aircraft operations; fleet mix; peak-hour airfield mix by class; runway occupancy times; taxiway exit percentages; noise, obstruction, terrain, departure, and arrival constraints; air traffic arrival and departure streams; minimum vectoring altitudes; aircraft separation by aircraft type; length of and approach speeds on common approach by aircraft type and weather; converging and/or parallel runway arrival and departure dependencies; and the different runway use configurations in the various wind and weather conditions.

On an annual basis, FAA will re-evaluate its project cost threshold level for benefit-cost analysis of grant applications. Greater experience and improved modeling capabilities may allow the threshold to be reduced to capture a growing number of capacity projects. Different thresholds could be established for various airport size categories. Finally, benefit-cost methodologies could be developed for projects other than capacity projects.

4. Ensure Program Consistency/Report on AIP Investment Decisions: FAA will ensure consistent application of current and future investment criteria at the regional FAA office level. As part of this effort, FAA will issue a detailed description of its selection process for grant approval. FAA will also take steps to initiate the production of an annual public report describing its AIP investment decisions. The report will present information on which projects were funded and why, and would include the results of benefit-cost analyses on large discretionary capacity projects. The report will also provide an analysis of performance measures with regard to attainment of national goals (first annual report to be published by April 1, 1995).

II. FY 1994/95 AIP INVESTMENT CRITERIA INITIATIVES

1. Issue Letter of Intent (LOI) Policy: FAA will issue a new policy on LOI's as of June 30, 1994, which will become effective in FY 1995. Under this new policy (currently in preparation), LOI's will be limited to airside development projects. Additionally, strict benefit-cost analysis will be required, with a benefit-cost ratio of at least one needed for approval. The new LOI policy will also consider the financial commitment of the airport authority to the project to be financed by the LOI.

2. Establish Outreach Program on AIP Investment Criteria: FAA will solicit advice from industry experts on how to improve AIP investment criteria. In FY 1993, FAA charged its Research, Engineering, and Development Advisory Committee to establish a working group on this subject. This group presented its preliminary findings on February 4, 1994, and will submit its final report by February 28, 1994.

FAA will also arrange for the Transportation Research Board to host an industry/academia symposium to solicit comments on FAA's AIP project selection process and the use of benefit-cost analysis. The expected date for this symposium is June 15, 1994.

3. Further Revision of AIP Investment Criteria: FAA will simultaneously evaluate and revise its AIP investment criteria with respect to the issues addressed below:

- a) Revised goals for AIP--FAA will clarify the Federal interest in airports and formulate goals consistent with these interests for the AIP (to be completed by November 30, 1994);
- b) National Airport System Definition--FAA will, with OST, define the National Airport System in a manner consistent with the National Transportation System. This definition will be incorporated in the National Plan of Integrated Airport Systems. In addition, special provisions may be made to support more effectively the National Airport System (to be completed by March 31, 1995); and
- c) Enhanced Priority System--FAA will revise the Priority System to reflect Federal interests and AIP goals in a more direct manner (to be completed by May 31, 1995);

FAA will implement new policies developed as a result of these initiatives during FY 1995, although FY 1996 will represent the first full year in which the new policies would be in place.

Table 1: Schedule of AIP Investment Criteria Actions

ACTION		COMPLETION DATE
I.	FY 1994 AIP ALLOCATION CRITERIA	
1.	Preliminary Planning Screen	Immediate
2.	Prioritization of Discretionary Grants	
a.	Rank applications using Priority System/ Establish goals for Special Programs	Immediate
b.	Establish national minimum score that all regional projects must meet or exceed	Immediate
3.	Benefit-Cost Analysis of Discretionary Projects	Immediate
4.	Ensure Program Consistency/Report on AIP Investment Decisions	Immediate--First Annual Report in April 1995
II.	FY 1994/95 AIP INVESTMENT CRITERIA INITIATIVES	
1.	Issue Letter of Intent (LOI) Policy	June 30, 1994 (for application in FY 1995)
2.	Establish Outreach Program on AIP Investment Criteria	
a.	R,E&D Advisory Committee Working Group	February 28, 1994
b.	Transportation Research Board Symposium	June 15, 1994
3.	FAA Internal Review of Investment Criteria	
a.	Revise goals for AIP	November 30, 1994
b.	National Airport System definition	March 31, 1995
c.	Enhanced Priority System	May 31, 1995

Table 2: Priority System

	Commercial >1M enpl.; Noncomm. >=100 Based Aircraft	Commercial >=10K enpl. but <1M enpl.; Noncomm. >=50 Based Aircraft but <100	Commercial <10K enpl.; Noncomm. >=20 Based Aircraft but <50	Noncomm. <20 Based Aircraft
	(W)	(X)	(Y)	(Z)
PLANNING CATEGORIES				
- Initial Study for Existing Airport	1	2	3	4
- Study for New Airport	1	2	3	4
- Complete/Continue Phased Projects	1	2	3	3
- Periodic Update	2	3	4	4
- Supplemental Grant for Ongoing Study	2	2	2	2
DEVELOPMENT CATEGORIES				
- Special Programs (e.g., Safety)	1	1	1	1
- Reconstruction	2	2	3	7
- Standards (Includes Noise Mitigation)	2	3	4	9
- Upgrade	3	4	5	10
- Capacity	3	4	5	12
- New Airport Capacity	3	5	7	12
- New Airport Community	5	6	7	12

ADD-ON FACTORS (No Add-on Factors for SPECIAL PROGRAMS):

- +1 = Primary landing surface and associated taxiway, approaches
- +2 = Aprons, secondary landing surface and associated taxiway, approaches
- +3 = Fundamental configuration or for noise compatibility in DNL 75 dB
- +4 = CFR maintenance facilities, electronic navaids, AWDs, snow removal equipment/storage buildings
- +5 = Primary access roads, noise compatibility (DNL 65-74), terminal buildings
- +6 = Snow abrasive/chemical storage buildings
- +7 = Other (such as service roads, secondary access roads, noise compatibility projects outside DNL 65 dB, fencing, etc.)

NOTE: The Priority System conforms to the following hierarchy of general goals:

- 1) Support airport safety and security;
- 2) Carry out statutory policy and regulatory direction;
- 3) Encourage airport/planning agencies to plan for improvements;
- 4) Preserve existing infrastructure;
- 5) Bring airports into compliance with FAA design criteria; and
- 6) Add new capacity.

For each of these goals, the Priority System assigns precedence to:

- 1) Airside over landside projects so as to improve air traffic safety and capacity; and
- 2) Busier airports, as measured by level of service (passengers or aircraft) so as to provide benefits to the greatest number of users.

PASSENGER FACILITY CHARGES

Mr. CARR. Many airports that collect passenger facility charges must return AIP entitlement funds that are then converted to discretionary funds for noncommercial and small-hub airports. FAA estimates that in fiscal year 1995, these funds will include about \$78 million for non-hub airports and \$39 million for small-hub airports. What types of projects does FAA plan to fund at these airports?

[The information follows:]

All eligible AIP work may be considered at these airports using the returned entitlement funds. The FAA will use its investment criteria to select the highest priority work at these locations for the use of these funds. We expect the types of projects to include all categories, e.g. safety, reconstruction, new pavement, land acquisition, lighting, etc.

LOS ANGELES—TRANSFER OF FUNDS

Mr. CARR. It was recently reported in the trade press that the City of Los Angeles has asked DOT to allow them to transfer \$43 million plus interest from the airport revenue fund to the city's general fund to correct what they view as a previous accounting error. The city apparently wants to use these funds for additional police resources.

Please provide some detail on this issue and enclose a copy of the city's letter to DOT.

[The information follows:]

In 1985, the State of California, on behalf of CALTRANS initiated condemnation proceedings against the City of Los Angeles for a strip of land along the southern boundary of the airport adjacent to Imperial Highway. The State acquired fee simple title to some of the parcel and air rights over the remainder of the parcel.

The \$43 million dollar figure has two components. Approximately \$31.5 million was awarded in payment for the fee simple title air rights and for severance value. Approximately \$11.5 million was paid by the state for interest accrued between 1985 and 1990, when payment was actually made. The city also wants to transfer interest accrued since 1990 while the funds were in the airport capital account. As of November 1993, the value of this accrued interest was approximately \$9 million.

The City asserts that it is entitled to transfer the funds because the property was originally acquired by the City with City funds and the proceeds of general obligation bonds; because the property was not being used for aeronautical activities at the time of the condemnation; and because FAA policy defines airport revenue to exclude proceeds from the sale of sponsor property.

The FAA has verified that no federal funds were used to acquire the land. However, we have also determined that over a period of more than 20 years ending in 1981, airport funds were transferred each year to reimburse the City's general funds for the City's contributions of capital and operating funds over the years.

A copy of the City's letter is enclosed. However, due to the poor quality of Exhibit B, the 1946 deed and related material from the City's letter, it will be provided to the committee as a separate document.

44-2 26-1-26-1
3/23/94



OFFICE OF THE MAYOR

RICHARD J. RIORDAN
MAYOR

February 25, 1994

The Honorable Federico F. Pena
Secretary of Transportation
U.S. Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

Re: Proper Allocation of Funds From Century
Freeway Condemnation by California
Department of Transportation

Dear Secretary Pena:

On behalf of the City of Los Angeles, we are seeking your concurrence that a proposed reallocation of approximately \$43 million (plus accrued interest) from the Los Angeles Airport Revenue Fund to the City of Los Angeles General Fund would be consistent with the Airport and Airway Improvement Act of 1982 ("AAIA") and the grant agreements ("Grant Agreements") between Los Angeles International Airport ("LAX") and the Federal Aviation Administration ("FAA") pursuant to the AAIA. These are the funds (plus accrued interest) which were allocated incorrectly to the Airport Revenue Fund following a condemnation of City-owned land for a freeway. Accordingly, the proposed transfer



The Honorable Federico F. Pena
February 25, 1994
Page Two

simply represents the correction of a mistake that was made in allocating funds to the Airport Revenue Fund which should have been allocated to the City's general funds. Due to the City's urgent need for funds, we would appreciate your immediate attention to this matter.

Because of declining revenues, the City of Los Angeles, like many major metropolitan areas, has experienced a serious underpolicing problem. The recent devastating earthquake has exacerbated this problem and the City is now in critical need of all available financial resources. In the course of an audit conducted by the City's new administration, it was discovered that certain funds ("Freeway Funds"), totalling approximately \$43 million, which were paid by the State of California to the City in 1989 and 1990 in compensation for City-owned land taken by the State for purposes of the construction of the Century Freeway (subsequently renamed the Glenn M. Anderson Freeway), were erroneously allocated to the Airport Revenue Fund. Accordingly, the City now wishes to reallocate that amount, and interest accrued thereon to date, from the Airport Revenue Fund to the City's General Fund. The City would then use these reallocated funds only for public safety purposes.

The Honorable Federico F. Pena
February 25, 1994
Page Three

The City is facing a critical shortfall in the budget for the next fiscal year, which must be presented to the City Council by April 20, 1994, and the funds from the airport are available to be reallocated at this time. To forestall any argument that the proposed transfer of the funds constitutes an improper diversion of airport revenue under the AAIA and the assurances contained in the Grant Agreements, we are requesting your written concurrence that the proposed transfer would be consistent with the AAIA and the terms of the Grant Agreements. If your concurrence were issued in the next several days, it could cut through what could otherwise be an extensive and, under the circumstances, painful delay.

Our special counsel, Morrison & Foerster, have prepared, and I enclose, a memorandum summarizing the facts relating to the Freeway Funds and the reasons that the proposed transfer should be deemed to be consistent with the AAIA and the terms of the Grant Agreements thereunder. Attached to that memorandum are certain documents relevant to the characterization of the Freeway Funds. In view of

The Honorable Federico F. Pena
February 25, 1994
Page Four

the exigent circumstances facing the City, we would
appreciate your immediate attention to this matter.

Sincerely,

Theodore O. Stein, Jr.
President
Board of Airport Commissioners

Enclosure

MORRISON & FOERSTER

MEMORANDUM

TO: Theodore O. Stein, Jr., President
Board of Airports Commissioners

FROM: Morrison & Foerster
Steven S. Rosenthal
Zane O. Gresham

DATE: February 25, 1994

RE: Proper Allocation of Funds From Century
Freeway Condemnation by California Department
of Transportation

You have requested our analysis of a proposed transfer of funds from the Airport Revenue Fund to the City of Los Angeles general funds for the purpose of correcting a mistake that was made in the allocation to the Airport Revenue Fund of proceeds from City-owned land condemned by the State of California. This memorandum summarizes certain key facts regarding (1) the City of Los Angeles' acquisition, ownership and disposition of real property ultimately taken by the State of California to build a freeway; and (2) the internal allocation by the City of the funds paid by the State for such real property. This memorandum further analyzes the proper treatment of such funds under relevant grant assurances given pursuant to grant agreements between the City and the Federal Aviation Administration ("FAA") under the Airport and Airway Improvement Act of 1982 ("AAIA").

MORRISON & FOERSTER

I. Facts

Between 1937 and 1947, the City of Los Angeles acquired the following six parcels of land:

- Parcel No. 1: Two deeds recorded in Book 15350 on Pages 138 and 139 as document numbers 17209 and 17210 conveyed 625.65 acres at a cost of \$2,240,000 in 1937.
- Parcel No. 2: Deed recorded in Book 187, Page 71 conveyed sixty (60) acres at a cost of \$137,500 and was dated September 10, 1946.
- Parcel No. 3: Final Order of Condemnation recorded in Book 200 Page 31 conveyed 4.2 acres at a cost of \$58,429 and was dated November 25, 1947 (R/W 20566 Parcel No. 12).
- Parcel No. 4: Deed recorded in Book 187, Page 72 conveyed 4.62 acres at a cost of \$17,824 and was dated August 6, 1946.
- Parcel No. 5: Deed recorded in Book 189, Pages 32 and 33 conveyed 4.62 acres at a cost of \$17,824 and was dated October 1, 1946.
- Parcel No. 6: Deed recorded in Book 184, Page 106 conveyed approximately 25 acres and was dated February 25, 1946.

A map showing the numbered parcels acquired by the City is attached as Exhibit A. All of the parcels were acquired by

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the Los Angeles Department of Public Works. Fee simple title to each of the parcels was acquired in the name of the City of Los Angeles. Copies of the deeds for each of the parcels is attached as Exhibit B.

Title to the parcels was held by the City continuously until 1988, when a portion of each of the parcels ("Freeway Property") was acquired by the State of California by condemnation for the construction of the Century Freeway. A copy of the Interlocutory Judgment in Condemnation entered in Superior Court of the State of California on December 14, 1988 ("Judgment") is attached as Exhibit C. During the time that the City owned the parcels, no improvements were constructed on the Freeway Property, and the Freeway Property was not used for aeronautical purposes.

In December 1989, \$31,418,697.26, representing the principal amount due to the City in payment for the Freeway Property pursuant to the Judgment, was wired by the State of California to the City's general account at Security Pacific National Bank. In November 1990, \$11,500,000.00, representing interest owed pursuant to the Judgment, was wired by the State of California to the same account. Upon receipt of the condemnation proceeds by the City, the funds were ministerially but mistakenly allocated to the Airport Revenue Fund.

II. Discussion

The basic issue is whether the funds received by the City for parcels which the City acquired with its own money, and never used for airfield purposes, constitute "airport revenue." If the Freeway Funds were viewed to

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constitute "revenue" generated by LAX for purposes of the AAIA and the Grant Agreements, the Freeway Funds would be required to be allocated to LAX. Specifically, Section 511(a)(12) of the AAIA provides that before approving an airport development project contained in a project grant application, the Secretary of Transportation shall receive assurance that all revenues generated by the airport, if it is a public airport, "will be expended for the capital or operating costs of the airport, the local airport system, or other local facilities which are owned or operated by the owner or operator of the airport and directly and substantially related to the actual air transportation of passengers or property. . ." 49 U.S.C.A. app. § 2210(a)(12) (1993). This assurance is part of the terms of each of the Grant Agreements.

Based on the following analysis, we conclude that the Freeway Funds are not "revenue" generated by LAX. Although the AAIA does not define "revenue" for purposes of Section 511(a)(12), Section 4, ¶ 630 of FAA Order 5100.38A (Airport Improvement Program (AIP) Handbook) states,

Airport revenue is revenue generated by facilities and activities on or off airport. Examples of airport revenue include revenue from service fees, landing fees, lease or rental fees, usage fees, sales of commodities such as agricultural or forest products, proceeds from mineral sales, or other net revenue produced from real property. . . Airport revenue does not include proceeds from the sale of real property owned by the sponsor. (emphasis added)

The Freeway Property is not now, and never has been, owned by LAX. From the time the Freeway Property was acquired until it was condemned, the City was the owner of record of

MORRISON & FOERSTER

the Freeway Property. The City purchased the Freeway Property with municipal funds; no federal funds were utilized to acquire the Freeway Property. Although the Freeway Property has been included in the airport layout plans submitted by LAX to the FAA,¹ at no time was the Freeway Property used for aeronautical purposes, nor were any improvements constructed on the Freeway Property.

Accordingly, the City, and not LAX, owned the Freeway Property, and the Freeway Funds are properly viewed as the return on a capital investment by the City, and not revenues generated by LAX. Moreover, even if LAX were viewed to have owned the Freeway Property, the Freeway Funds would not constitute airport revenue under the definition set forth in FAA Order 5100.38A. Accordingly, the Freeway Funds do not constitute revenues generated by LAX for purposes of the AAIA or the terms of the Grant Agreements.

* * *

Conclusion

For the foregoing reasons, we believe that the reallocation of approximately \$43 million, plus interest,² from the Airports Revenue Fund to the City's General Fund should not violate Section 511(a)(12) of the AAIA, the terms of the Grant Agreements or any other requirement of federal law.

1 We have been advised that the Freeway Property is no longer shown on the Airport's internal documents; the property is being removed from the airport layout plan.

2 The exact amount to be transferred will depend on the amount of interest accrued through the date of transfer.

LOS ANGELES—TRANSFER OF FUNDS

Mr. CARR. When does the Department expect to rule on this request?

[The information follows:]

The Department intends to respond as promptly as possible. However, the Los Angeles proposal has been questioned by the airlines serving the airport. In addition, because the property was transferred by condemnation, rather than by voluntary sale, the transaction raises some questions of first impression. We are giving the matter careful review to assure that the requirements of the Airport and Airway Improvement Act are satisfied and that the City is not deprived of any funds to which it is legally entitled.

AIP—DISCRETIONARY FUNDS

Mr. CARR. What is the total estimated cost of each of the AIP projects for which discretionary funds were specifically allocated in last year's appropriations action?

[The information follows:]

Chicago O'Hare—The sponsor has requested \$18.4 million in AIP funds out of a total estimated project cost of \$61 million; Philadelphia—new runway—\$215 million; San Juan—taxiway—\$7 million; Clarksburg, WV—runway extension—\$28 million; and Center, TX—runway extension—\$2.5 million.

Mr. CARR. What is the status of each of those projects, and what is the future schedule?

[The information follows:]

Chicago O'Hare—bids will be taken for the project in May. Construction is planned for two construction seasons (1994 and 1995). The sponsor has requested \$18.4 million in AIP funds. The balance of the project will be funded with PFC revenue.

Philadelphia—the environmental assessment is expected to be completed by Fall 1994. If approved, land acquisition and design work will commence. Initial construction could begin in late 1995. Projected completion is 1999.

San Juan—project began in FY 1993 and is ready for final funding to complete the work in FY 1994.

Clarksburg, WV—design is underway with expected completion by Summer 1994. At that time, the magnitude of work to be accomplished by the National Guard and the local matching share of funds must be determined before a construction schedule can be determined.

Center, TX—environmental assessment is underway with expected completion during Summer 1994. An application for construction would be submitted at that time.

Mr. CARR. How much additional funding could each of these projects be expected to obligate during fiscal year 1995?

[The information follows:]

Chicago O'Hare: In fiscal year 1995, the sponsor should be ready to obligate the remainder of the 1994 request of \$18.4 million which is not granted in FY 1994. At this time, with a temporary extension of the AIP proposed and uncertainty regarding follow-up legislation, we are unable to determine the amount of FY 1994 funding.

Philadelphia: This project has not completed its environmental assessment; therefore, funding projections have not been made in order to avoid prejudging the environmental finding. The assessment is expected to be completed Fall 1994.

San Juan: The project is expected to be completed after FY 1994 AIP funding; therefore, no funds will be required in 1995.

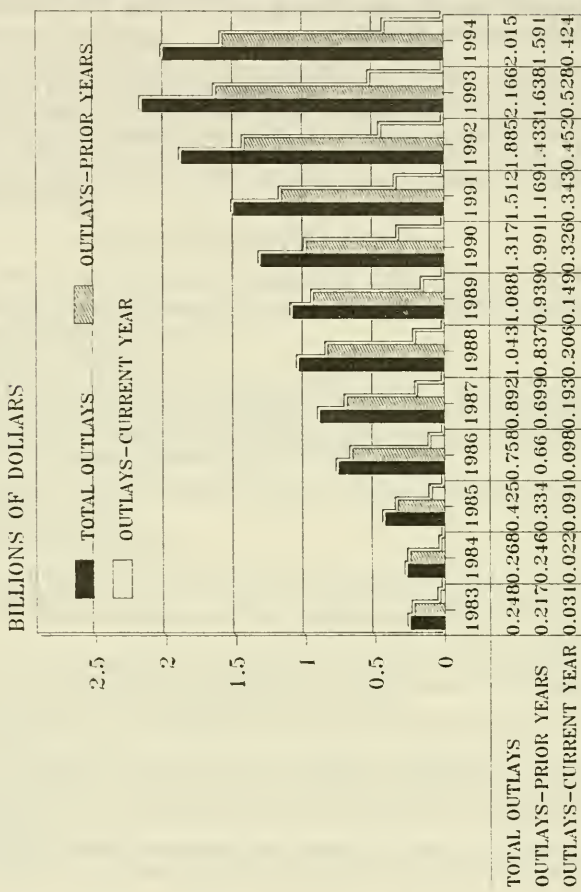
Clarksburg: This project is not expected to be ready to begin until the degree of participation by the National Guard and the amount of the local matching funds have been finalized. The sponsor has not yet scheduled a meeting with the National Guard.

Center: This project has not completed its environmental assessment; therefore, funding projections have not been made in order to avoid prejudging the environmental finding. The assessment is expected to be completed Summer 1994.

FACILITIES AND EQUIPMENT (F&E) OUTLAYS

Mr. CARR. Please update the bar chart shown on page 693 of last year's hearing record concerning end of year F&E outlays.
[The information follows:]

OUTLAYS, END OF YEAR FACILITIES AND EQUIPMENT



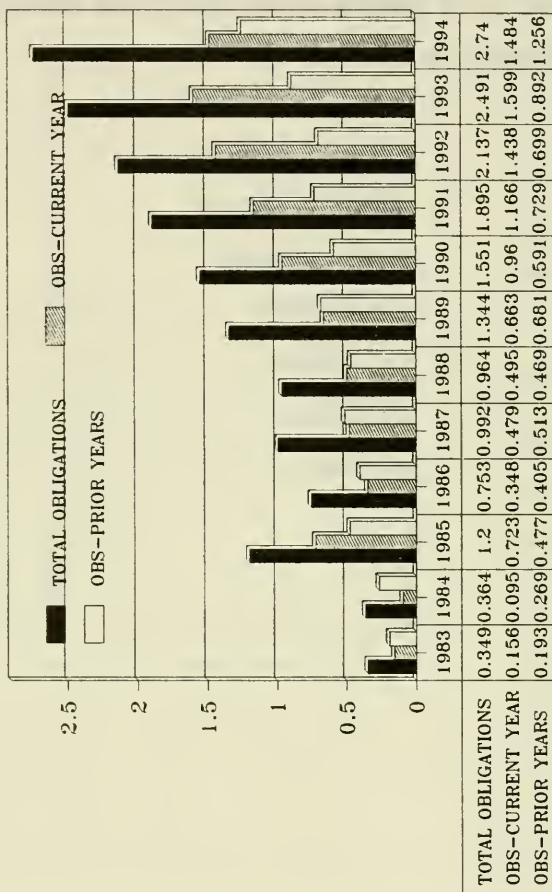
FACILITIES AND EQUIPMENT (F&E) OBLIGATIONS

Mr. CARR. Please update the related bar chart shown on page 695 of last year's hearing record concerning end of year F&E obligations.

[The information follows:]

OBLIGATIONS, END OF YEAR FACILITIES AND EQUIPMENT

BILLIONS OF DOLLARS



FACILITIES AND EQUIPMENT FIRST YEAR OBLIGATION RATES

Mr. CARR. Please update the table on page 696 of last year's hearing record showing trends in first year obligation rates by providing data for fiscal years 1985 through 1995.

[The information follows:]

TRENDS IN FIRST YEAR OBLIGATION RATES

[Dollars in thousands]

	Appropriation ¹	Obligation (percent)
Fiscal year:		
1995 (estimate)	2,269,100	70.0
1994 (estimate)	2,120,104	70.0
1993	2,350,000	68.1
1992	² 2,394,000	60.0
1991	2,095,380	55.6
1990	1,721,171	55.8
1989	1,383,184	47.9
1988	1,102,831	44.9
1987	796,498	60.2
1986	884,111	39.2

¹ Appropriation as adjusted by transfers, sequestrations, and restorals.

² Excludes \$15,000 for storm supplemental enacted during last month of the fiscal year.

FAA LEVEL I, II, III MAJOR SYSTEM ACQUISITIONS

Mr. CARR. Please update the listing of FAA Level I, II, and III major system acquisitions, as shown on pages 700 through 703 of last year's hearing record.

[The information follows:]

An updated listing of FAA Level I, II, and III major acquisitions follows.

**LEVEL I MAJOR
ACQUISITIONS**

PROGRAM	FY 95 CONGRESSIONAL REQUEST IN MILLIONS	MISSION NEED STATEMENT APPROVAL AND DATE
Advanced Automation System (AAS)	\$509.9	Approved for limited production under original NAS Plan.
Aeronautical Data Link (ADL)	15.0	KDP #1 - 10/23/91
Airport Surface Traffic Automation (ASTA)	4.0	KDP #1 - 7/23/91
Airport Surveillance Radar (ASR-9)	20.5	Approved for production under original NAS Plan.
Air Route Surveillance Radar (ARSR-4) [Long Range Radar (LRR)]**	21.1	Approved for production under original NAS Plan.
Aviation Weather Products Generator (AWPG) [Aviation Weather Development Program]	12.8	KDP #2 - 5/4/93
Central Weather Processor (MWP, RWP)	4.7	Request for KDP #3 approval in coordination.
Enhanced Terminal Voice Switch Replacement (ETVSR)	2.0	KDP #1 - 10/22/92
FAA Corporate Systems Architecture	3.0	KDP #1 - 8/10/92
FSAS Operational Supportability and Implementation Systems (OASIS)	2.0	KDP #1 - 7/21/92
Integrated Terminal Weather System (ITWS) [Aviation Weather Development Program]	10.7	KDP #2 - 5/4/93
Microwave Landing System (MLS)	23.3	KDP #3 - 7/2/92
Mode-S	24.9	Approved for production under original NAS Plan.

*FY 95 Congressional Request

**Brackets identify budget line that major acquisitions reside within when different from program name.

**LEVEL I MAJOR
ACQUISITIONS**

PROGRAM	FY 95 CONGRESSIONAL REQUEST IN MILLIONS	MISSION NEED STATEMENT APPROVAL AND DATE
Remote Maintenance Monitoring System (RMMS)	10.0	KDP #1 - 3/14/94
Wide Area Augmentation System (WAAS) for GPS	25.9	KDP #1 - 10/23/92
Terminal Area Surveillance System (TASS)	5.2 (R&D)	KDP #1 - 4/13/92
Terminal Doppler Weather Radar (TDWR)	25.0	Approved for production under original NAS Plan.
Terminal Enhanced Weather Surveillance (ASR-ASR-9 Modification for Low Altitude Windshear Detection)**	1.0	KDP #1 - 7/23/91
Terminal Radar Digitizing, Replacement, and Establishment [ASR-9 - Terminal Surveillance Radar Engineering]**	2.0	KDP #1 - 7/30/91
Traffic Management System Replacement	10.8	KDP #1 - 12/7/93
Voice Switching and Control System (VSCS)	231.2	KDP #1 - 10/30/92

*FY 95 Congressional Request

**Brackets identify budget line that major acquisitions reside within when different from program name.

**LEVEL II MAJOR
ACQUISITIONS**

PROGRAM	FY 95 CONGRESSIONAL REQUEST IN MILLIONS	MISSION NEED STATEMENT APPROVAL AND DATE
Aircraft Fleet Modernization Program [Flight Inspection Aircraft]**	50.0	KDP #4 - 9/10/91
Automated Surface Observing System (ASOS)	37.2	Approved under original NAS Plan.
Computer Resources Nucleus (CORN) [Automated Data Processing Facilities Management]**	20.6	Approved under original NAS Plan.
DOD Base Closures	10.7	KDP #4 - 4/22/93
NAS Implementation Support Contract (NISC)	62.0	10/25/92
Oceanic Automation Program (OAP) Formally called "Oceanic System Development and Support"	16.4	KDP #4 - 1/21/94 (Developmental Components of OSDS) KDP #4 - 10/6/92 Mature components of OSDS
Radar Microwave Link (RML) Replacement/Expansion	8.0	Approved for production under original NAS Plan.
Systems Engineering and Technical Assistance Contract (SETA) (Formerly Systems Engineering and Integration Contract (SEIC))	95.2	3/6/92
Technical Assistance Contracts (TAC) for Navigation, Radar, Communications and Weather***	***	1/9/92 and 2/11/92
Technical Support Services Contract (TSSC)	62.0	Approved under original NAS Plan.
Terminal ATC Automation (TATCA)	13.0	KDP #1 - 8/16/91

*FY 95 Congressional Request

**Brackets identify budget line that major acquisitions reside within when different from program name.

***Each TAC is funded by multiple budget program lines.

**LEVEL III MAJOR
ACQUISITIONS**

PROGRAM	FY 95 CONGRESSIONAL REQUEST IN MILLIONS	MISSION NEED STATEMENT APPROVAL AND DATE
Aircraft Related Equipment	6.0	KDP #4 - 1/17/92
Airport Surface Detection Equipment (ASDE-3) [ASDE Mosaic and Logistics Support]**	7.0	Approved for production under original NAS Plan.
Alaskan NAS Interfacility Communications System (ANICS)	5.0	KDP #4 - 6/14/91
ARTCC Operational Support Space	17.5	1/24/92
Automated Radar Terminal System (ARTS) IIIE Upgrades to Selected Air Facilities	10.0	KDP #4 - 4/22/92
Data Multiplexing Network (DMN) Phase III	5.5	Approved for production under original NAS Plan.
EnRoute Software Development and Integration Support (ERSDS)	10.3	KDP #4 - 6/12/92
Instrument Landing System (ILS)	18.6	Approved for production under original NAS Plan.
National Airspace Data Information Network (NADIN II)	3.8	Approved for production under original NAS Plan.
Next Generation Weather Radar (NEXRAD)	62.0	Approved for production under original NAS Plan.
Precision Runway Monitor (PRM)	1.0	KDP #3 - 12/26/92
Terminal Software Development (TSD)	4.0	KDP #4 - 4/23/91
Terminal Voice Switch Replacement (TVSR)	13.5	KDP #4 - 11/15/91
VOR/DME/TACAN Network Plan	.6	Approved for production under original NAS Plan.

*FY 95 Congressional Request

**Brackets identify budget line that major acquisitions reside within when different from program name.

AAS PRIME CONTRACT FUNDING

Mr. CARR. Please provide a detailed breakdown of your prime contract funding estimate for the advanced automation system (AAS) program for fiscal years 1993 through 1995, similar in format to that shown on page 703 of last year's hearing record. Understanding that the program is currently under review, for fiscal year 1995 please provide the breakdown upon which the fiscal year 1995 budget request was based.

[The information follows:]

The estimates for FY 1994 and FY 1995 are subject to change based on the findings and recommendations from the AAS Recovery Team appointed by the Administrator.

ADVANCED AUTOMATION SYSTEM PRIME CONTRACT FUNDING ESTIMATES

[Dollars in millions]

	1993 program	1994 program	1995 request
Contract requirements	\$221.60	\$99.05	¹ \$271.60
Award fee	4.10	11.00	20.00
Options	.60	1.00	3.60
New requirements:			
TCCC CHI	.00	.00	13.30
ISSS block updates	10.00	8.95	50.00
ISSS continuous ops	0.80	41.00	10.00
TAAS stand-alone	8.50	32.00	35.00
Total	245.60	193.00	¹ 403.50

¹ Includes \$28.8 million requested in Activity 2.

ADVANCED AUTOMATION SYSTEM BASIS OF FISCAL YEAR 1995 REQUEST

[Dollars in millions]

	Activity 1	Activity 2
Prime contract	\$374.70	\$28.80
AERA	27.00	.00
Support contracts	40.80	.00
Implementation support	29.00	.00
Training	2.00	.00
ARTCC modernization	.00	7.60
Total	473.50	36.40

PRECISION RUNWAY MONITOR PROGRAM

Mr. CARR. Please provide a summary of the status of the precision runway monitor program, similar to that shown on page 704 of last year's hearing record, and explain any schedule slippage compared to that information.

[The information follows:]

Our current plan is to replace the prototype Raleigh-Durham system with a production system from the five system production contract. The prototype system will be sufficiently different from the production systems so as to make life cycle maintenance and support of the prototype prohibitively expensive. The PRM production program has been progressing on schedule. Key milestones accomplished include:

Awarded modification to incorporate reflection and overload processing features. Conducted study and awarded modification to incorporate heaters into antenna elements.

Awarded modification to incorporate processing for triple parallel runways (Atlanta).

Completed review of First Article Factory Test Procedures.

Awarded Maintenance Contract for Raleigh-Durham system.

The proposed PRM sites and anticipated commissioning dates are as follows:

Location	Delivery	Commissioning
1. Minn/St. Paul	October 94	September 95.
2. Atlanta	January 95	January 96.
3. RDU	April 95	April 96.
4. JFK	August 95	August 96.
5. TBD	December 95	December 96.

JFK will replace one of the systems for Memphis and BWI. The fifth site has not been determined. Memphis is planning to construct a third parallel runway which will provide the capacity benefit, and therefore will no longer qualify for PRM. Construction of the proposed parallel runway at BWI is scheduled for completion in 2000 (beyond contract period of performance). JFK was selected based on a most favorable Cost/Benefit ratio.

The delays at Minn/St. Paul and RDU are due to issues stemming from operational test and evaluation at RDU.

VOICE SWITCHING AND CONTROL SYSTEM (VSCS)

Mr. CARR. Please update the data on VSCS costs as shown on page 705 of last year's hearing record.

[The information follows:]

VOICE SWITCHING AND CONTROL SYSTEM CURRENT CAPITAL PROGRAM ESTIMATE

[In millions of dollars]

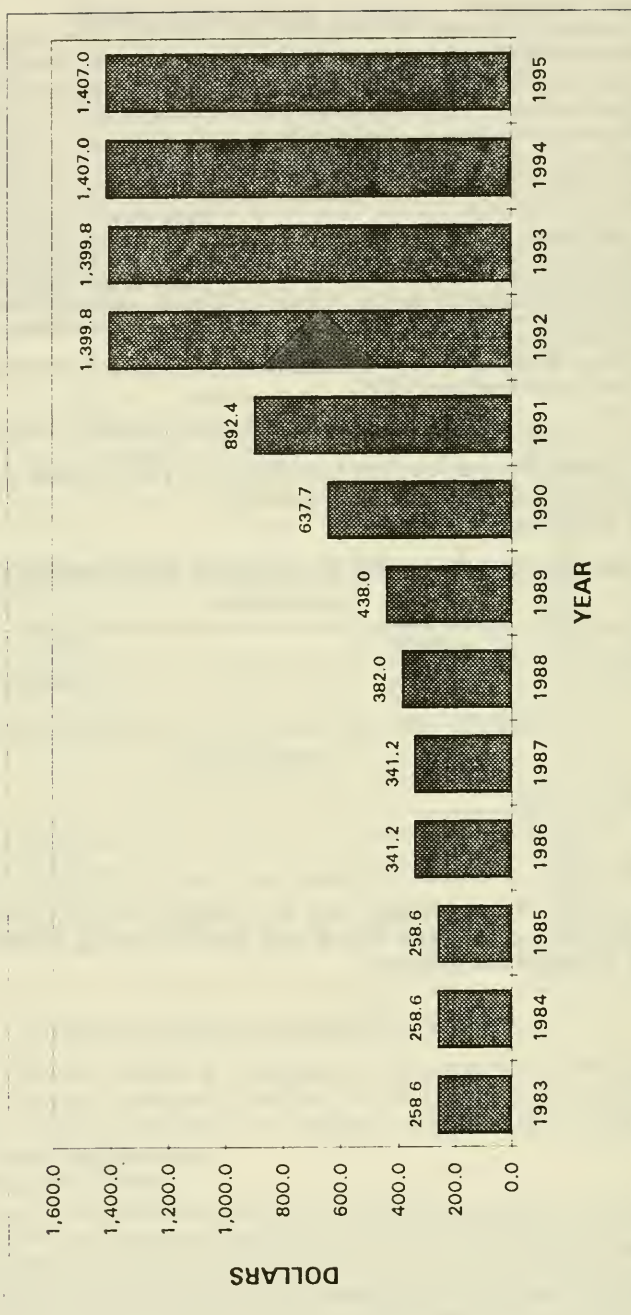
Fiscal year	RE&D	F&E	Total
1992 and prior	\$125.8	\$468.2	\$594.0
1993		246.0	246.0
1994		207.5	207.5
1995		231.2	231.2
1996		162.6	162.6
1997		71.2	71.2
1998		18.4	18.4
Beyond		1.9	1.9
Total	125.8	1,407.0	1,532.8

Mr. CARR. Please update the bar graph on VSCS program cost estimates shown on page 706 of last year's hearing record.

[The information follows:]

TOTAL VSCS F&E PROGRAM ESTIMATE

(In Millions of Dollars)



VSCS PRIME CONTRACT COSTS

Mr. CARR. Please provide a breakdown of the fiscal year 1995 budget request for the VSCS prime contract, similar in format to that shown on page 707 of last year's hearing record.

[The information follows:]

Voice switching and control system, fiscal year 1995—prime contract requirements, production

[Dollars in millions]

Description:	Amount
Data	\$0.5
Performance award	3.0
Program management	29.5
Site survey	1.1
Prototype development upgrade	16.1
PPI	7.9
Long lead	9.4
System labor	8.5
System material	32.9
ISSS VCE	25.4
Transition switch	4.3
Installation	48.0
Site support	3.8
Site maintenance	4.2
Level II maintenance	3.3
AT training	0.3
AF training	3.1
FAAAC hardware	0.3
Total requirements—Production	201.6
Total requirements—Prime Contract	201.6

ASR-9 SITE IMPLEMENTATION

Mr. CARR. Please update the ASR-9 site implementation data shown on pages 708 through 711 of last year's hearing record.

[The information follows:]

ASR-9 SITE IMPLEMENTATION SCHEDULE

Location	Delivery	Commissioning
1) HUNTSVILLE, AL	DEC-87	MAY-89
2) FAA TECH CENTER, NJ	JAN-89	N/A
3) TRAINING ACADEMY, OK	JAN-89	N/A
4) FAA DEPOT, OK	FEB-89	N/A
5) NEWBURGH-STEWART, NY	MAY-89	APR 90
6) BROWNSVILLE, TX	MAY-89	OCT-89
7) ORLANDO, FL	JUN-89	FEB-90
8) SALT LAKE CITY, UT	JUL-89	FEB-90
9) CHANTILLY, VA	JUL-89	MAY-93
10) PASCO, WA	JUL-89	JAN-90
11) MOSES LAKE, WA	AUG-89	FEB-90
12) LOS ANGELES NORTH, CA	AUG-89	MAR-90
13) LOS ANGELES SOUTH, CA	AUG-89	MAR-90
14) McCLELLAN AFB, CA	SEP-89	JUN-90
15) BEALE AFB, CA	OCT-89	JUN-90
16) WICHITA, KS	OCT-89	JUN-90
17) BALTIMORE, MD	OCT-89	AUG-90
18) TULSA, OK	OCT-89	OCT-90
19) PROVIDENCE, RI	NOV-89	DEC-90
20) RALEIGH, NC	NOV-89	DEC-90
21) CHARLESTON, SC	NOV-89	JUL-94
22) WSMR, NM	NOV-89	N/A
23) WSMR, NM	NOV-89	N/A
24) WSMR, NM	NOV-89	N/A
25) ROCHESTER, NY	DEC-89	JUN-94
26) TOLEDO, OH	JAN-90	FEB-91
27) SYRACUSE, NY	JAN-90	FEB-93
28) FT RUCKER, AL	JAN-90	JUL-93
29) CHARLOTTE, NC	JAN-90	MAY-91
30) BIRMINGHAM, AL	FEB-90	DEC-93
31) OFFUTT AFB, NE	MAR-90	SEP-90
32) DALLAS-ADDISON, TX	MAR-90	NOV-93
33) MADISON, WI	MAR-90	DEC-90
34) NELLIS AFB, NV	MAR-90	AUG-90
35) CHICAGO-TINLEY, IL	APR-90	APR-93
36) CHICAGO-OHARE, IL	APR-90	JUN-92
37) ATLANTA, GA	MAY-90	OCT-94
38) PITTSBURGH, PA	MAY-90	APR-94
39) OAKLAND, CA	MAY-90	MAR-92
40) SAN JOSE-MOFFETT NAS, CA	JUN-90	APR-91

Location	Delivery	Commissioning
41) NORFOLK, VA	JUN-90	DEC-94
42) BOSTON, MA	JUN-90	JUN-91
43) RICHMOND, VA	JUL-90	DEC-93
44) FT. LAUDERDALE, FL	JUL-90	MAR-93
45) PHILADELPHIA, PA	JUL-90	OCT-94
46) KANSAS CITY, MO	AUG-90	APR-91
47) FAA FACILITY	AUG-90	N/A
48) MIAMI, FL	AUG-90	JUN-93
49) INDIANAPOLIS, IN	AUG-90	MAR-93
50) DENVER, CO	SEP-90	MAY-91
51) MINNEAPOLIS, MN	SEP-90	DEC-94
52) SAN ANTONIO, TX	OCT-90	SEP-91
53) NANTUCKET, MA	OCT-90	JUN-91
54) AUSTIN, TX	OCT-90	JUN-91
55) HARRISBURG, PA	NOV-90	FEB-93
56) HOUSTON-HOBBY, TX	NOV-90	NOV-92
57) ATLANTIC CITY, NJ	NOV-90	SEP-93
58) CLEVELAND, OH	NOV-90	MAY-91
59) HOUSTON-IAH, TX	DEC-90	NOV-91
60) ST. LOUIS, MO	DEC-90	JUL-91
61) ANDREWS AFB, MD	DEC-90	JUN-93
62) COLUMBUS, OH	JAN-91	OCT-94
63) MEMPHIS, TN	JAN-91	SEP-92
64) PORTLAND, OR	FEB-91	FEB-93
65) NEW ORLEANS, LA	FEB-91	OCT-93
66) ONTARIO-MARCH AFB, CA	FEB-91	DEC-92
67) BUFFALO, NY	MAR-91	JUL-92
68) MILWAUKEE, WI	MAR-91	DEC-93
69) PHOENIX, AZ	APR-91	SEP-92
70) TROUT CREEK-HILL AFB, UT	APR-91	N/A
71) DETROIT, MI	APR-91	AUG-92
72) LONG BEACH, CA	MAY-91	JUN-93
73) BOVINE HILL AFB, UT	MAY-91	N/A
74) DALLAS-COLLEYVILLE, TX	JUN-91	DEC-95
75) CEDAR MTN-HILL AFB, UT	JUN-91	N/A
76) TUSCON-DAVIS MONTHAN AFB, AZ	JUL-91	APR-93
77) BURBANK, CA	AUG-91	MAY-93
78) OKLAHOMA CITY, OK	AUG-91	OCT-92
79) ALBUQUERQUE, NM	AUG-91	APR-93
80) DAYTON, OH	SEP-91	MAR-94
81) GREENSBORO, NC	OCT-91	JUN-94
82) KNOXVILLE, TN	OCT-91	SEP-94
83) LAS VEGAS, NV	DEC-91	JUL-94
84) WINDSOR LOCKS, CT	FEB-92	JUL-92

Location	Delivery	Commissioning
85) SAN DIEGO, CA	FEB-92	DEC-93
86) SEATTLE, WA	MAR-92	OCT-93
87) LUBBOCK, TX	MAR-92	AUG-92
88) DENVER-IRONDALE, CO	APR-92	MAY-94
89) CEDAR RAPIDS, IA	MAY-92	SEP-93
90) HONOLULU, HI	MAY-92	JUN-94
91) MEDFORD, OR	JUN-92	JUL-94
92) MISSOULA, MT	SEP-92	JUN-94
93) DALLAS/FORT WORTH-EAST, TX	OCT-92	NOV-93
94) COVINGTON, KY-CINCINNATI	NOV-92	APR-94
95) NASHVILLE, TN	NOV-92	FEB-94
96) DENVER-PLATTEVILLE, CO	DEC-92	MAY-94
97) SAN ANGELO, TX	DEC-92	JAN-94
98) EL PASO-BIGGS, TX	JAN-93	SEP-93
99) SARASOTA-BRADENTON, FL	FEB-93	NOV-94
100) MONTGOMERY-MAXWELL AFB, AL	MAR-93	MAY-94
101) GRAND RAPIDS, MI	APR-93	AUG-94
102) JACKSONVILLE, FL	MAY-93	OCT-94
103) NEW YORK-JFK, NY	MAY-93	MAY-94
104) DES MOINES, IA	MAY-93	NOV-93
105) CAMP PENDLETON,	JUN-93	MAY-94
106) FORT WAYNE, IN	JUL-93	APR-94
107) SHREVEPORT-BARKSDALE, LA	JUL-93	MAR-94
108) FT. CAMPBELL, KY	AUG-93	SEP-94
109) LOUISVILLE, KY	SEP-93	FEB-95
110) PASCO, WA	SEP-93	MAR-94
111) DAYTONA BEACH, FL	OCT-93	FEB-95
112) YAKIMA, WA	OCT-93	FEB-95
113) TAMPA, FL	JAN-94	AUG-94
114) SCOTT AFB, IL	FEB-94	JUL-94
115) FAYETTEVILLE, AR	MAY-94	DEC-94
116) DETROIT #2-PONTIAC	MAY-94	NOV-94
117) GAINESVILLE, FL	JUL-94	APR-95
118) BOSTON (2), MA	AUG-94	APR-95
119) FAYETTEVILLE, NC	SEP-94	AUG-95
120) GRAND JUNCTION, CO	OCT-94	MAR-95
121) FT. HOOD, TX	NOV-94	DEC-95
122) ALBANY, NY	DEC-94	SEP-95
123) PORTLAND, ME	DEC-94	JUN-95
124) CHARLOTTESVILLE, VA	JAN-95	NOV-95
125) NEWARK, NJ	APR-95	FEB-96
126) DALLAS-FORT WORTH (4), TX	MAY-95	JAN-96
127) ROSWELL, NM	JUN-95	JAN-96
128) ATLANTA (2), GA	JUL-95	MAR-96

	<u>Location</u>	<u>Delivery</u>	<u>Commissioning</u>
129)	MARTINSBURG, WV	SEP-95	AUG-96
130)	LYNCHBURG, VA	DEC-95	DEC-96
131)	COLUMBIA, MO	JAN-96	MAY-96
132)	ISLIP, NY	FEB-96	NOV-96
133)	WHITE PLAINS, NY	AUG-96	MAY-97
134)	WASHINGTON-NATIONAL, VA	FEB-97	SEP-97

ARSR-4 LONG RANGE RADAR

Mr. CARR. Please update the ARSR-4 long range radar site implementation data shown on page 712 of last year's hearing record. [The information follows:]

The table below updates the long range radar site implementation data shown on page 712 of last year's hearing record. The table reflects (1) the changes in delivery sequence to accommodate revised site priorities, (2) the changes in operational dates to incorporate schedule delays, and (3) the addition of one new location.

ARSR-4 LONG RANGE RADAR SITE IMPLEMENTATION

LOCATION	OPERATIONAL DATE	FISCAL YEAR FUNDED
FAA Aeronautical Center	July 1994	1988
Mount Laguna, CA	September 1994	1989
Richmond, FL	January 1995	1989
Makah, WA	February 1995	1989
Paso Robles, CA	March 1995	1989
Rainbow Ridge, CA	March 1995	1989
Oilton, TX	April 1995	1989
Jedburg, SC	April 1995	1989
Mt. Santa Rosa, Guam	May 1995	1990
Lake Charles, LA	June 1995	1990
Salem, OR	July 1995	1990
Gibbsboro, NJ	July 1995	1990
Mt. Kaala, HI	August 1995	1990
Rocksprings, TX	August 1995	1990
Cross City, FL	September 1995	1990
Slidell, LA	September 1995	1990
Oceana, VA	October 1995	1990
Fort Fisher, NC	October 1995	1991
North Truro, MA	November 1995	1991
Morales, TX	November 1995	1991
Ft. Lonesome, FL	November 1995	1991
Tyndall, FL	December 1995	1991
Nashwauk, MN	December 1995	1991
Lakeside, MT	January 1996	1991
Bucks Harbor, ME	January 1996	1991
Murphy Dome, AK	Completed (FPS-117)	1991
Watford City, ND	February 1996	1992
Whitehouse, FL	February 1996	1992
Riverhead, NY	March 1996	1992
King Mountain, TX	March 1996	1992
Empire, MI	April 1996	1992

LOCATION	OPERATIONAL DATE	FISCAL YEAR FUNDED
Caribou (Loring), ME	April 1996	1993
Finley, ND	May 1996	1992
Eagle Peak, TX	May 1996	1992
Mica Peak, WA	June 1996	1992
Mill Valley, CA	June 1996	1993
Malmstrom, MT	July 1996	1993
Patrick, FL	July 1996	1993
Deming, NM	August 1996	1993
Ajo, AZ	August 1996	1993
Utica, NY	September 1996	1993

NEXT GENERATION WEATHER RADAR (NEXRAD)

Mr. CARR. Please update the next generation weather radar (NEXRAD) site and delivery data shown on pages 713 through 715 of last year's hearing record.

[The information follows:]

<u>Number</u>	<u>Site Location</u>	<u>Date</u>
1	Operational Support Facility Norman OK	12/88
2	NWS Maintenance Training Center Kansas City MO	5/90
3	Oklahoma City OK	5/90
4	Melbourne FL	3/91
5	Washington DC	7/91
6	St Louis MO	11/91
7	Dodge City KS	12/91
8	Houston TX	1/92
9	Wichita KS	8/92
10	Goodland KS	9/92
11	Kansas City MO	10/92
12	Amarillo TX	11/92
13	Little Rock AR	12/92
14	Phoenix AZ	1/93
15	Jackson MS	1/93
16	Miami FL	2/93
17	Tulsa OK	2/93
18	Denver CO	3/93
19	Topeka KS	3/93
20	Detroit MI	4/93
21	Chicago IL	4/93
22	Grand Island NE	4/93
23	Pittsburgh PA	5/93
24	Cleveland OH	6/93
25	Indianapolis IN	6/93
26	Harrisburg PA	6/93
27	Binghamton NY	7/93
28	Philadelphia PA	7/93
29	New York NY	7/93
30	Louisville KY	7/93
31	Fairbanks (Interim) AK	7/93
32	Milwaukee WI	8/93
33	Memphis TN	8/93
34	Albany NY	9/93
35	Boston MA	9/93
36	Anchorage (Interim) AK	9/93
37	Boise ID	9/93
38	Sioux Falls SD	10/93
39	Des Moines IA	10/93
40	Beaufort NC	10/93
41	Molokai (Interim) HI	10/93

<u>Number</u>	<u>Site Location</u>	<u>Date</u>
42	Portland ME	10/93
43	Dallas-Fort Worth TX	11/93
44	Columbia SC	11/93
45	Los Angeles CA	12/93
46	Sacramento CA	12/93
47	Lubbock TX	12/93
48	Seattle WA	1/94
49	Tampa FL	1/94
50	Raleigh NC	1/94
51	San Francisco CA	2/94
52	New Orleans LA	2/94
53	Lake Charles LA	3/94
54	Birmingham AL	3/94
55	San Antonio TX	3/94
56	Cheyenne WY	4/94
57	Omaha NE	4/94
58	Atlanta GA	4/94
59	Albuquerque NM	5/94
60	Cincinnati OH	5/94
61	Norfolk VA	5/94
62	Mobile AL	6/94
63	Charleston WV	6/94
64	South Kauai HI	6/94
65	Knoxville TN	6/94
66	Minneapolis MN	7/94
67	Great Falls MT	7/94
68	Reno NV	7/94
69	Missoula MT	7/94
70	Salt Lake City UT	8/94
71	Green Bay WI	8/94
72	Wilmington NC	8/94
73	Nashville TN	8/94
74	Bismarck ND	9/94
75	Charleston SC	9/94
76	Roanoke VA	9/94
77	Aberdeen SD	9/94
78	Pueblo CO	10/94
79	Portland OR	10/94
80	Eureka CA	10/94
81	Moline IL	10/94
82	Springfield MO	11/94
83	Paducah KY	11/94
84	Tallahassee FL	11/94
85	Jacksonville FL	12/94

<u>Number</u>	<u>Site Location</u>	<u>Date</u>
86	Las Vegas NV	12/94
87	San Juan PR	12/94
88	Brownsville TX	1/95
89	Fresno CA	1/95
90	Kamuela HI	1/95
91	Greer SC	1/95
	Molokai (Rpl interim sys)HI	2/95
92	Midland TX	2/95
93	Tucson AZ	2/95
94	Yuma AZ	3/95
95	Springfield IL	3/95
96	Shreveport LA	3/95
97	Pendleton OR	4/95
98	North Platte NE	4/95
99	Pocatello ID	4/95
100	Grand Rapids MI	5/95
101	Marquette MI	5/95
102	Duluth MN	5/95
	Anchorage (Rpl interim sys)AK	5/95
103	Caribou ME	6/95
104	Riverton WY	6/95
	Fairbanks (Rpl interim sys) AK	6/95
105	Buffalo NY	6/95
106	Lacrosse WI	7/95
107	Flagstaff AZ	7/95
108	King Salmon AK	7/95
109	Medford OR	7/95
110	Elko NV	8/95
111	Cedar City UT	8/95
112	Grand Junction CO	8/95
113	Spokane WA	8/95
114	Rapid City SD	8/95
115	Billings MT	9/95
116	Alpena MI	9/95
117	Fargo ND	9/95
118	Glasgow MT	10/95
119	Burlington VT	10/95
120	Corpus Christi TX	11/95
121	El Paso TX	11/95
122	San Angelo TX	2/95
123	San Diego CA	12/95
125	Bethel AK	TBD
126	Middleton Island AK	TBD
127	Nome AK	TBD

<u>Number</u>	<u>Site Location</u>	<u>Date</u>
128	Sitka AK	TBD
129	South Hawaii HI	TBD
130	Georgetown BH	TBD
131	Grand Turk BH	TBD

Two FY 1993 Congressionally mandated sites were added: Greer, S.C. and Caribou, ME (both are National Weather Service NEXRADs).

MODE S GROUND LOCATION SCHEDULE

Mr. CARR. Please update the Mode S ground location schedule as shown on pages 717 through 720 of last year's hearing record.
[The information follows:]

MODE S GROUND LOCATION SCHEDULE

Sequence Number	Site Name	State	Delivery Date
1	FAATC	NJ	07/15/91
2	LOGISTICS CENTER	OK	09/10/92
3	ORLANDO	FL	04/15/92
4	FAATC	NJ	03/30/92
5	AERONAUTICAL CENTER	OK	07/30/92
6	DENVER	CO	10/29/92
7	BALTIMORE	MD	11/19/92
8	AUSTIN	TX	01/04/93
9	DENVER 2 (PLATTEVILLE)	CO	01/11/93
10	KANSAS CITY	MO	01/18/93
11	CHARLOTTE	NC	01/25/93
12	CLEVELAND	OH	02/01/93
13	LONG BEACH	CA	02/08/93
14	SAN ANTONIO	TX	02/15/93
15	SEATTLE	WA	02/22/93
16	SAINT LOUIS	MO	03/01/93
17	HARRISBURG	PA	03/15/93
18	SAN DIEGO/MIR	CA	03/22/93
19	WINDSOR LOCKS	CT	03/29/93
20	PORTLAND	OR	04/05/93
21	WICHITA	KS	04/12/93
22	MEMPHIS	TN	04/19/93
23	BUFFALO	NY	05/05/93

Sequence Number	Site Name	State	Delivery Date
24	MARYSVILLE/BEALE	CA	05/11/93
25	SALT LAKE CITY-9	UT	05/17/93
26	NEW ORLEANS	LA	06/07/93
27	NASHVILLE	TN	06/14/93
28	SYRACUSE	NY	06/21/93
29	OAKLAND	CA	06/28/93
30	DALLAS-FORT WORTH	TX	07/05/93
31	OMAHA	NE	07/12/93
32	CHICAGO (TINLEY PARK)	IL	07/19/93
33	COVINGTON/CINCINNATI	KY	08/03/93
34	ANDREWS AFB	MD	08/02/93
35	MOFFETT/SAN JOSE	CA	08/09/93
36	OKLAHOMA CITY	OK	08/16/93
37	PROVIDENCE (COVENTRY)	RI	08/23/93
38	MINNEAPOLIS	MN	08/30/93
39	MIAMI	FL	09/06/93
40	PHILADELPHIA	PA	09/13/93
41	EL TORO/CAMP PENDLETON	CA	09/27/93
42	ALBUQUERQUE	NM	10/04/93
43	SACRAMENTO/MCLLND	CA	10/11/93
44	INDIANAPOLIS	IN	10/18/93
45	CHARLESTON	SC	10/25/93
46	CEDAR RAPIDS	IA	11/01/93
47	PITTSBURGH	PA	11/15/93
48	BANGOR	ME	11/29/93

Sequence Number	Site Name	State	Delivery Date
49	DAYTON	OH	11/29/93
50	TULSA	OK	12/06/93
51	NORFOLK	VA	12/13/93
52	BURBANK	CA	12/20/93
53	*DAYTONA BEACH	FL	01/07/94
54	BOSTON	MA	01/10/94
55	LAS VEGAS	NV	01/17/94
56	BIRMINGHAM	AL	01/24/94
57	FAATC	NJ	01/31/94
58	WASHINGTON DULLES	VA	02/07/94
59	DES MOINES	IA	02/14/94
60	LITTLE ROCK	AR	02/21/94
61	GRAND RAPIDS	MI	02/28/94
62	LOUISVILLE	KY	03/07/94
63	JFK NEW YORK	NY	03/14/94
64	EL PASO/BIGGS	TX	03/21/94
65	ATLANTA	GA	03/28/94
66	*SCOTT AFB	IL	04/04/94
67	ROANOKE	VA	04/18/94
68	LOS ANGELES-1	CA	04/25/94
69	FRESNO	CA	05/02/94
70	MILWAUKEE	WI	05/09/94
71	FORT LAUDERDALE	FL	05/16/94
72	LOS ANGELES-2	CA	05/23/94
73	HOUSTON/HOBBY	TX	05/30/94

Sequence Number	Site Name	State	Delivery Date
74	PARKER	CO	06/06/94
75	*PONTIAC	MI	06/13/94
76	JACKSONVILLE	FL	06/20/94
77	*STOCKTON	CA	06/27/94
78	HOUSTON	TX	07/04/94
79	COLUMBUS	OH	07/11/94
80	ANGEL PEAK	NV	07/18/94
81	RALEIGH/DURHAM	NC	07/25/94
82	SALT LAKE CITY/FRANK PK-1	UT	08/01/94
83	BOSSIER CITY/SHREVPT	LA	08/08/94
84	BATTLE MOUNTAIN	NV	08/15/94
85	SPOKANE	WA	08/22/94
86	TAMPA	FL	08/29/94
87	CORPUS CHRISTI	TX	09/05/94
88	TRINIDAD	CO	09/12/94
89	EVANSVILLE	IN	09/19/94
90	FALLON	NV	09/26/94
91	SARASOTA/BRADENTON	FL	10/03/94
92	ROCK SPRINGS	WY	10/10/94
93	MIDLAND	TX	10/17/94
94	ROCHESTER	NY	10/24/94
95	MARIETTA/DOBBINS	GA	10/31/94
96	BILLINGS	MT	11/07/94
97	TONOPAH	NV	11/14/94
98	*AZLE	TX	11/21/94

Sequence Number	Site Name	State	Delivery Date
99	GREEN BAY	WI	11/28/94
100	GRAND JUNCTION	CO	12/05/94
101	PENSACOLA	FL	12/12/94
102	ABILENE	TX	12/19/94
103	TUCSON/DAVIS MON	AZ	01/02/95
104	TALLAHASSEE	FL	01/09/95
105	FARGO	ND	01/16/95
106	GREAT FALLS	MT	01/23/95
107	LAKE CHARLES	LA	01/30/95
108	WARNER ROBBINS/MACON	GA	02/06/95
109	GARDEN CITY	KS	02/13/95
110	PHOENIX	AZ	02/20/95
111	D/FT WORTH (4TH)	TX	02/27/95
112	DETROIT	MI	03/06/95
113	ROCKVILLE	NE	03/13/95
114	SANTA BARBARA	CA	03/20/95
115	BISMARCK	ND	03/27/95
116	CEDAR CITY	UT	04/03/95
117	NORTH PLATTE	NE	04/10/95
118	AMARILLO	TX	04/17/95
119	CHICAGO	IL	04/24/95
120	KLAMATH FALLS/KENO	OR	05/01/95
121	*SACHSE	TX	05/08/95
122	BRISTOL/JOHNSON/KINGSPORT	TN	05/15/95
123	NEWARK	NJ	05/22/95

Sequence Number	Site Name	State	Delivery Date
124	ASHTON	ID	05/29/95
125	ONTARIO	CA	06/05/95
126	DULUTH	MN	06/12/95
127	FORT SMITH	AR	06/19/95
128	WILMINGTON	NC	06/26/95
129	SAINT ALBANS	VT	07/03/95
130	RED BLUFF	CA	07/10/95
131	LUSK	WY	07/17/95
132	SPRINGFIELD	MO	07/24/95
133	GETTYSBURG	SD	07/31/95
134	MESA RICA	NM	08/07/95
135	LOVELL	WY	08/14/95
136	ALBANY	NY	08/21/95
137	GALLUP	NM	08/28/95
138	TYLER	MN	09/04/95
139	CASCADE	ID	09/11/95
140	JACKSON	MS	09/18/95
141	*HONOLULU	HI	09/25/95
142	*CHESTER	NH	10/02/95
143	*STEWART APT	NY	10/09/95
144	*ATLANTA	GA	10/16/95
145	MARTINSBURG	WV	10/23/95

Sequence Number	Site Name	State	Delivery Date
146	*COLUMBIA	MO	10/30/95
147	ISLIP	NY	11/06/95
148	WHITE PLAINS	NY	11/13/95
149	WASHINGTON	DC	11/20/95

* Eleven additional sensors were purchased to support the Interim Support Plan (ISP).

ASDE-3 LOCATION DATA

Mr. CARR. Please update the ASDE-3 location data shown on page 721 of last year's hearing record. Please add a column showing the appropriation year in which funds were provided for each site.

[The information follows:]

Location	Delivery	Appropriation Year
Pittsburgh, Pa	01/17/94	1985
FAA Academy ¹	N/A	1985
FAA Technical Center ²	N/A	1985
Dallas/Ft. Worth	11/28/93	1985
Philadelphia	05/01/94	1985
Los Angeles ⁴	01/03/94	1985
Detroit	02/17/94	1986
Atlanta	01/04/94	1985
San Francisco	06/14/95	1985
Boston	11/01/93	1985
Newark	07/01/95	1985
Cleveland	04/06/94	1985
New York - Kennedy	01/20/94	1985
Seattle	11/01/93	1985
Portland	11/29/93	1985
Andrews AFB	01/23/95	1985
Miami	05/27/94	1986
New York - La Guardia	12/09/95	1986
St. Louis	01/03/94	1986
Houston ⁴	09/06/94	1986
Washington National	03/08/95	1986
Memphis	07/09/94	1986
Denver (DIA) ^{3,4}	11/03/93	1985
Denver (DIA)	12/15/93	1988
Houston ⁴	03/03/95	1988
Minneapolis	03/07/94	1986
Los Angeles ⁴	01/03/94	1988
Chicago	09/13/94	1985
Tampa	12/09/94	1986
Baltimore	10/18/94	1986
New Orleans	09/28/94	1986
Kansas City	03/25/94	1986
Anchorage	06/03/94	1986
Dulles ⁵	03/31/95	1993
Raleigh-Durham ⁵	04/28/95	1993
Orange County ⁵	05/31/95	1993
San Diego ⁵	06/30/95	1993
Cincinnati ⁵	07/31/95	1993
Orlando ⁵	08/31/95	1993
Charlotte ⁵	09/29/95	1993

- ¹ FAA Training/Field Support/Depot Support Facility
- ² FAA R&D system for Runway Incursion
- ³ Second System was procured in FY 1993
- ⁴ Dual Sensor Facilities
- ⁵ FY 1993 Congressionally Mandated Sites

The total estimated program cost for the 40 systems at 37 locations is \$216.8 million, or an average cost of approximately \$5.9 million per site. The \$49.5 million added in FY 1993 to procure additional systems is included in the total estimated program cost. The FY 1995 request of \$7.0 million for site preparation for the FY 1993 Congressionally mandated sites is not included in the total estimated program cost.

ATC FACILITY MODERNIZATION LOCATIONS

Mr. CARR. Please list the 87 ATC facilities to be modernized with your \$16,433,000 request for ATC facilities modernization, similar to that shown on page 728 of last year's hearing record. However, for each facility provide the corresponding cost estimate and a brief description of the work being performed.

[The information follows:]

The \$16.433 million request for ATC Facilities Modernization includes 49 ATC facilities to be modernized not 87, as referred to in the question.

ATC FACILITY MODERNIZATION LOCATIONS

LOCATION	COST	DESCRIPTION
Alaska Region (Various), AK	\$185,400	Provide interfacility data displays systems at Bethel, Juneau, Kenai, King Salmon, & Kodiak.
Atlanta, GA*	\$322,840	Establish additional arrival radar position.
Atlanta, GA*	\$423,540	Establish additional satellite radar position at Terminal Radar Approach Control (TRACON) and associated handoff position at ATCT.
Bellevue, NE	\$24,400	Install new flight data control in TRACON.
Cedar Rapids, IA	\$9,700	Install closed circuit TV security system at ATCT.
Charlotte, NC	\$326,360	Establish 4th local control position in ATCT.
Chesterfield, MO	\$9,700	Install closed circuit TV security system at ATCT.
Cincinnati, OH	\$134,200	Replace heating, ventilating, and air conditioning equipment (HVAC) at Lunken ATCT.
Cleveland, OH	\$112,200	Replace heating, ventilating, and air conditioning equipment at Lakefront ATCT.
Columbus, OH	\$579,520	Construct building for equipment and environmental work area, storage, restrooms, and breakroom at Ohio State ATCT.
Corpus Christi, TX	\$207,670	Install training target generator (TTG) lab and dedicated radar alpha numeric display system.
Daytona Beach, FL	\$6,000	Replace information display system (IDS) with larger system.
Des Moines, IA*	\$9,700	Install closed circuit TV security system at ATCT.
Des Moines, IA*	\$35,000	Replace carpeting and wall coverings.
Evansville, IN	\$1,080,900	Construct base building and renovate existing space.
Falmouth, MA	\$356,700	Construct administrative space building.
Greensboro, NC	\$552,200	Refurbish facility, replace consoles, HVAC, etc.
Houston (IAH), TX*	\$514,600	Refurbish TRACON to conform with new equipment, additional positions/equipment and other changes.
Houston (IAH), TX*	\$1,020,250	Establish two radar control positions in the TRACON.

Indianapolis, IN	\$168,980	Provide two VHF frequencies and radios for TRACON.
Kalamazoo, MI	\$134,200	Replace heating, ventilating, and air conditioning equipment at ATCT and TRACON.
Kansas City, MO*	\$9,700	Install closed circuit TV security system at Downtown ATCT (MKC).
Kansas City, MO*	\$4,600	Replace cab carpet with anti-static flooring at Downtown ATCT (MKC).
Kansas City, MO*	\$4,900	Replace cab carpet with anti-static flooring at MCI ATCT.
Lancaster, PA	\$135,840	Establish a flight data/clearance delivery position at the ATCT.
Memphis, TN*	\$287,150	Establish additional local control position at ATCT.
Memphis, TN*	\$280,960	Establish additional radar position.
Miami, FL	\$10,000	Install additional integrated communications switching systems position at in TRACON.
Moline, IL	\$97,310	Provide 2nd UHF frequency and equipment at Quad City ATCT.
Norfolk, VA	\$75,000	Construct storage building.
Omaha, NE	\$30,000	Renovate ATCT breakroom.
Philadelphia, PA*	\$257,680	Establish a second local control position.
Philadelphia, PA*	\$493,800	Install separate radar display.
Pueblo, CO	\$752,600	Renovate ATCT.
San Carlos, CA	\$99,850	Refurbish tower to conform with additional equipment and other changes.
San Francisco, CA	\$255,530	Refurbish tower to conform with changes in runway configurations, new positions, etc.
Sioux City, IA	\$9,700	Install closed circuit TV security system at ATCT.
Springfield, MO*	\$594,900	Construct administrative space building and increase parking area.
Springfield, MO*	\$9,700	Install closed circuit TV security system at ATCT.
St. Louis, MO	\$13,000	Install closed circuit TV security system at ATCT.
Stockton, CA	\$99,950	Refurbish tower to conform with additional equipment and other changes.
Swanton (Toledo), OH	\$107,300	Refurbish Toledo ATCT consoles, kitchenette, HVAC controls, etc.
Tulsa, OK	\$86,500	Establish overhead coordination position.
Waterloo, IA	\$11,500	Install closed circuit TV security system at ATCT.
Westbury, NY*	\$104,400	Expand parking lot at TRACON.
Westbury, NY*	\$62,000	Replace ceiling tile in TRACON.

Westbury, NY*	\$57,000	Replace electrical wiring, add outlets and phone receptacles in TRACON.
Westbury, NY*	\$184,000	Replace fluorescent lighting fixtures in TRACON.
Wichita, KS	\$13,000	Install closed circuit TV security system at ATCT.

*Multiple separate modernization projects will be accomplished at this facility.

The preceding projects total \$10,361,930. The remaining \$6,071,070 provides for the transition to the automated and other relocated/replaced equipment configurations, assessment of individual ATC facility projects for compatibility with tower cab and tower equipment rooms, assistance in performing human factor analyses for the most effective positioning of the air traffic controller displays and control equipment using the airway facilities tower integration laboratory, and assessment and planning for temporary shelters and associated power heating, and cooling for temporary electronic equipment space while present space is being renovated. This also provides for FAA Technical Center support for integration and transition planning for 435 ATCTs and 170 TRACONS. In addition, it provides funding for mobile airport traffic control facilities, tower environment video displays systems and a tower cab shade replacement program.

TOWER REPLACEMENTS

Mr. CARR. Please update the data on tower replacements shown on pages 728 through 729 of last year's hearing record by providing data for fiscal years 1992 through 1995.

[The information follows:]

Location	Fiscal Year 1992	Fiscal Year 1993	Fiscal Year 1995*	Unfunded Future Years
San Diego, CA	4,500,000			
Chicago (Midway), IL	11,900,000			
Kansas City, Mo	11,500,000			
Santa Barbara, CA	1,913,000	4,725,000		
Houston (Hobby), TX	6,600,000			
Pontiac, MI	3,890,000			
Syracuse, NY	7,600,000			
Minneapolis, MN	9,115,000			
Covington, KY	7,123,000	1,877,000		
Louisville, KY	3,000,000	7,437,000		
Buffalo, NY	500,000			
San Juan, PR	7,728,000			
Klamath Falls, OR	908,000		1,944,100	
Beaumont, TX	3,196,000			
Topeka, KS		974,000	2,497,300	
St. Paul, MN		1,585,000	3,476,200	
Worcester, MA		706,900	1,408,000	
Salt Lake City, UT		2,187,000	7,677,200	
Little Rock, AR		1,601,000	5,980,100	
Islip, NY		1,993,000	4,577,400	
Palwaukee, IL		1,305,000	3,777,700	
Bangor, ME		1,579,000	2,734,400	
Portland, OR	1,000,000		7,724,100	
Dallas (Addison), TX		1,324,000	3,693,700	
Moses Lake, WA		1,038,000	2,778,000	
Kissimmee, FL	100,000			
Wenatchee, WA	1,000,000			
Jackson, TN	427,000			
Mobile (Brookley), AL	1,000,000			2,500,000
Stewart, NY	3,000,000			
Kenosha, WI	1,000,000			
Merrill, AK			384,600	5,936,500
Salina, KS			182,900	3,556,600
Newport News, VA			196,000	3,249,800
Roanoke, VA			350,000	6,527,000
Columbus, OH			711,800	11,542,400
Manchester, NH			283,500	4,583,200
Everett, WA			287,400	4,622,700
Ft. Lauderdale (Executive), FL			235,800	4,836,000
San Angelo, TX			204,800	4,601,800
Oakland, CA			595,000	10,127,700
St. Louis, MO (TRACON)			1,400,000	TBD
Salt Lake City, UT (TRACON)			1,400,000	TBD

*No tower replacement funding was received in Fiscal Year 1994.

TOWER REPLACEMENTS—FUNDING AND CONSTRUCTION STATUS

Mr. CARR. Please update the funding and construction status information for tower replacement projects as shown on pages 730 through 738 of last year's hearing record.
[The information follows:]

Fiscal Year 1987**Albuquerque, NM**

Fiscal Year 1987 \$6,657,800

Fiscal Year 1988 \$ 538,900

Status: Construction complete. Electronic installation in progress.

Schedule: Commissioning June 1994.

Remarks: Construction Funds Obligated. Waiting delivery of ICSS equipment.**Buffalo, NY**

Fiscal Year 1987 \$5,894,900

Fiscal Year 1988 \$ 477,100

Status: Construction complete. Electronic installation underway.

Schedule: Commissioning September 1994.

Remarks: Construction Funds Obligated. Waiting delivery of ICSS equipment.**Norfolk, VA**

Fiscal Year 1987 \$7,377,700

Fiscal Year 1988 \$ 597,200

Status: Construction complete. Electronic installation underway.

Schedule: Commissioning September 1994.

Remarks: Construction Funds Obligated. Waiting delivery of ICSS equipment.**Monroe, LA**

Fiscal Year 1987 \$3,223,000

Fiscal Year 1988 \$ 286,800

Status: Construction complete.

Schedule: Commissioning November 1994.

Remarks: Construction Funds Obligated. Waiting delivery of ICSS equipment.Fiscal Year 1988**Atlanta Fulton County, GA** \$4,297,000

Status: Construction complete. ICSS equipment delivered.

Schedule: Commissioning April 1994

Remarks: Construction Funds Obligated.**St. Petersburg, FL** \$4,243,000

Status: Under construction.

Schedule: Commissioning August 1994.

Remarks: Construction Funds Obligated.

Fiscal Year 1988 (cont'd)**New Orleans, LA** \$6,697,000

Status: Construction complete.

Schedule: Commissioning January 1995.

Remarks: Construction Funds Obligated. Waiting for delivery of ICSS equipment.**Sioux City, IA** \$3,935,000

Status: Complete.

Schedule: Commissioned January 1992.

Remarks: Construction Funds Obligated.**Moses Lake, WA** \$ 765,000

Remarks: Project canceled. This project was to increase the height and size of the existing tower rather than to build a completely new structure. This procedure has been found infeasible and the project was submitted and approved for construction of a complete new ATCT in the FY-93 budget. Status is listed in fiscal year 1993 portion.

Chino, CA \$3,929,000

Status: Construction complete. Electronic installation underway.

Schedule: Commissioning June 1994.

Remarks: Construction Funds Obligated. Will wait for delivery of ICSS equipment.**Houston Intercontinental, TX** \$10,000,000

Status: Construction underway.

Schedule: Commissioning July 1996.

Remarks: Construction Funds Obligated.Fiscal Year 1989**Allentown, PA** \$6,363,000

Status: Construction underway.

Schedule: Commissioning December 1995.

Remarks: Construction Funds Obligated.**Windsor Locks, CT** \$7,643,200

Status: Site has been selected. Architect/Engineer contractor has completed site adaptation engineering.

Schedule: Bids were opened 7/7/93.

Remarks: Project is on hold at Congressional direction.

Fiscal Year 1989 (cont'd)**Detroit Metro, MI** \$12,714,600

Status: Complete

Schedule: Commissioned August 1992.

Remarks: Construction Funds Obligated**Fort Smith, AR** \$2,339,900 (Partial Funding)

Status: Site has been selected. Design is in progress.

Schedule: Construction award June 1995. Commissioning February 1998.

Orlando Executive, FL \$3,766,300

Status: Construction complete.

Schedule: Commissioning June 1994.

Remarks: Construction Funds Obligated.**San Jose Municipal, CA** \$4,673,000

Status: Under construction. Electronic installation underway.

Schedule: Commissioning June 1994.

Remarks: Construction Funds Obligated. Will wait for delivery of ICSS equipment.Fiscal Year 1990**St. Louis, MO**

Fiscal Year 1990 \$2,300,000

Fiscal Year 1991 \$9,954,200

Status: Site adaptation Engineering is underway.

Schedule: Construction award December 1994. Commissioning May 1997.

La Guardia, NY

Fiscal Year 1990 \$10,049,000

Fiscal Year 1988 \$ 114,600

Status: Site selection study is underway.

Schedule: Pending site selection

Newark, NJ

Fiscal Year 1990 \$2,200,000

Fiscal Year 1991 \$9,103,200

Status: Site selection is underway.

Schedule: Pending site selection

Fiscal Year 1990 (cont'd)**Chicago O'Hare, IL**

Fiscal Year 1990 \$ 2,200,000
 Fiscal Year 1991 \$15,493,000
 Status: Construction is underway.
 Schedule: Commissioning August 1996.
 Remarks: Construction Funds Obligated.

Helena, MT

Fiscal Year 1990 \$ 351,000
 Fiscal Year 1991 \$1,738,700
 Status: Design complete.
 Schedule: Construction award August 1993. Commissioning December 1994.
 Remarks: Construction Funds Obligated.

Montgomery, AL

Fiscal Year 1990 \$ 900,000
 Fiscal Year 1991 \$4,344,100
 Status: Construction is underway.
 Schedule: Commissioning October 1995.
 Remarks: Construction Funds Obligated.

Roswell, NM

Fiscal Year 1990 \$ 800,000
 Fiscal Year 1991 \$3,866,700
 Status: Engineering is 50% complete.
 Schedule: Construction award July 1995. Commissioning March 1998.

Fiscal Year 1991

Los Angeles, CA \$21,000,000
 Status: Construction is underway.
 Schedule: Commissioning December 1995.
 Remarks: Construction Funds Obligated.

San Diego Lindbergh, CA

Fiscal Year 1991 \$1,500,000
 Fiscal Year 1992 \$4,500,000
 Status: Engineering is underway.
 Schedule: Construction award September 1994. Commissioning September 1996.

Fiscal Year 1991 (cont'd)**Chicago Midway, IL**

Fiscal Year 1991 \$ 1,500,000

Fiscal year 1992 \$11,900,000

Status: Site selection and design complete.

Schedule: Construction award July 1994. Commissioning November 1996.

Kansas City International, MO

Fiscal Year 1991 \$ 2,000,000

Fiscal Year 1992 \$11,500,000 (\$10,000,000 reprogrammed at Congressional direction.)

Status: Construction contract awarded.

Schedule: Construction funds obligated. Commissioning December 1996.**Pontiac, MI**

Fiscal Year 1991 \$1,600,000

Fiscal Year 1992 \$3,890,000

Status: Site selection and design complete.

Schedule: Construction award September 1994. Commissioning November 1996.

Minneapolis, MN

Fiscal Year 1991 \$3,151,000

Fiscal Year 1992 \$9,115,000

Status: Design is complete.

Schedule: Construction award September 1994. Commissioning September 1997.

Covington, KY

Fiscal Year 1991 \$1,713,000

Fiscal Year 1992 \$7,123,000

Fiscal Year 1993 \$1,877,000

Status: Construction contract for tower only (without base building) is underway.

Schedule: Commissioning December 1995.

Syracuse, NY

Fiscal Year 1991 \$1,900,000

Fiscal Year 1992 \$7,600,000

Status: Site has been selected. Environmental assessment is underway.

Schedule: Construction award July 1995. Commissioning May 1997.

Houston Hobby, TX

Fiscal Year 1991 \$2,600,000

Fiscal Year 1992 \$6,600,000

Status: Site has been selected. Engineering is underway.

Schedule: Construction award June 1995. Commissioning April 1998.

Fiscal Year 1991 (cont'd)**San Juan, PR**

Fiscal Year 1991 \$4,000,000
 Fiscal Year 1992 \$7,728,000
 Status: Construction underway.
 Schedule: Commissioning April 1995.
 Remarks: Construction Funds Obligated.

Beaumont, TX

Fiscal Year 1991 \$5,000,000
 Fiscal Year 1992 \$3,196,000
 Status: Site has been selected.
 Schedule: Construction award April 1995. Commissioning February 1998.

Fiscal Year 1992**Santa Barbara, CA**

Fiscal Year 1992 \$1,913,000
 Fiscal Year 1993 \$4,725,000
 Status: Engineering is underway.
 Schedule: Construction award October 1994. Commissioning October 1996.

Louisville, KY

Fiscal Year 1992 \$3,000,000
 Fiscal Year 1993 \$7,437,000
 Status: A contract was signed with the airport sponsor to construct the control tower and TRACON. After the contract was signed, the sponsor stated that the site must be moved. Engineering is underway for the tower at the new site.
 Schedule: Construction start January 1995. Commissioning September 1996.
 Remarks: Construction Funds Obligated.

Klamath Falls, OR

Fiscal Year 1992 \$ 908,000
 Fiscal Year 1995 \$1,944,100
 Status: The site has been selected and negotiations for site adaptation are underway.
 Schedule: Construction award February 1995. Commissioning August 1996.

Portland, OR

Fiscal Year 1992 \$1,000,000
 Fiscal Year 1995 \$7,724,100
 Status: A site has been selected. Engineering is underway.
 Schedule: Construction award July 1995. Commissioning February 1998.

Fiscal Year 1992 (cont.'d)**Kissimmee, FL**

Fiscal Year 1992 \$ 100,000

Remarks: Funds will be issued to the sponsor as a grant.

Status: Grant agreement is being prepared.

Wenatchee, WA

Fiscal Year 1992 \$1,000,000

Remarks: Funds were intended to be issued to the sponsor as a grant. Negotiations with sponsor are underway.

Jackson, TN

Fiscal Year 1992 \$ 427,000

Remarks: Funds will be issued to the sponsor as a grant.

Status: Grant agreement is being prepared

Mobile Brookley, AL

Fiscal Year 1992 \$1,000,000

Status: Engineering underway.

Schedule: Construction award December 1994 Commissioning May 1996.

Remarks: Additional funding required

Stewart

Fiscal Year 1992 \$3,000,000

Fiscal Year 1993 \$1,700,000 (FY-93 funding under ATCT Establish)

Status: Site selection is underway.

Schedule: Construction award December 1995. Commissioning October 1997.

Kenosha, WI

Fiscal Year 1992 \$1,000,000

Schedule: Electronic installation start May 1994. Electronic installation complete August 1994.

Remarks: Funds will be used to furnish and install equipment in sponsor-constructed tower.

Fiscal Year 1993**Topeka, KS**

Fiscal Year 1993 \$ 974,000

Fiscal Year 1995 \$2,497,300

Status: Site selection is underway.

Schedule: Construction award April 1995. Commissioning February 1997.

Fiscal Year 1993 (cont.'d)**St. Paul, MN**

Fiscal Year 1993 \$1,585,000

Fiscal Year 1995 \$3,476,200

Status: Site selection is underway.

Schedule: Construction award July 1995. Commissioning May 1997.

Worcester, MA

Fiscal Year 1993 \$ 706,900

Fiscal year 1995 \$1,408,000

Status: Site adaptation engineering is underway.

Schedule: Construction award October 1994. Commissioning January 1996.

Salt Lake City, UT

Fiscal Year 1993 \$2,187,000

Fiscal Year 1995 \$7,677,200

Status: Site selection completed and design is underway.

Schedule: Construction award March 1995. Commissioning December 1996.

Little Rock, AR

Fiscal Year 1993 \$1,601,000

Fiscal Year 1995 \$5,980,100

Status: Site selection completed and design is underway.

Schedule: Construction award January 1996. Commissioning July 1998.

Islip, NY

Fiscal Year 1993 \$1,993,000

Fiscal Year 1995 \$4,577,400

Status: Site selection is underway.

Schedule: Construction award March 1997. Commissioning December 1998.

Palwaukee, IL

Fiscal Year 1993 \$1,305,000

Fiscal Year 1995 \$3,777,700

Status: Site selection is complete.

Schedule: Construction award June 1995. Commissioning November 1996.

Bangor, ME

Fiscal Year 1993 \$1,579,000

Fiscal Year 1995 \$2,734,400

Status: Site selection is underway.

Schedule: Pending site selection.

Fiscal Year 1993 (cont.'d)**Dallas Addison, TX**

Fiscal Year 1993 \$1,324,000

Fiscal Year 1995 \$3,693,700

Status: Site selection is underway.

Schedule: Construction award October 1995. Commissioning January 1998.

Moses Lake, WA

Fiscal Year 1993 \$1,038,000

Fiscal Year 1995 \$2,738,000

Status: Site selection is complete.

Schedule: Construction award November 1994. Commissioning April 1997.

Fiscal Year 1995 (Proposed)**Merrill, AK**

Fiscal Year 1995 \$ 384,600

Additional Cost to complete \$ 5,936,500

Salina, KS

Fiscal Year 1995 \$ 182,900

Additional Cost to complete \$ 3,556,600

Newport News, VA

Fiscal Year 1995 \$ 196,000

Additional Cost to complete \$ 3,249,800

Roanoke, VA

Fiscal Year 1995 \$ 350,000

Additional Cost to complete \$ 6,527,000

Columbus, OH

Fiscal Year 1995 \$ 711,800

Additional Cost to complete \$11,542,400

Manchester, NH

Fiscal Year 1995 \$ 283,500

Additional Cost to complete \$ 4,583,200

Everett, WA

Fiscal Year 1995 \$ 287,400

Additional Cost to complete \$ 4,622,700

Fiscal Year 1995 Proposed (cont.'d)**Ft. Lauderdale Exec. FL**

Fiscal Year 1995 \$ 235,800
Additional Cost to complete \$ 4,836,000

San Angelo, TX

Fiscal Year 1995 \$ 204,800
Additional Cost to complete \$ 4,601,800

Oakland, CA

Fiscal Year 1995 \$ 595,000
Additional Cost to complete \$10,127,700

TOWER REPLACEMENT CANDIDATE LISTING

Mr. CARR. Please update the tower replacement candidate list shown on page 739 of last year's hearing record.

[The information follows:]

For fiscal year 1994, 31 locations were identified as potential candidates for facility replacement. Two of these were included in the FAA's FY 1993 budget request and were funded by Congress in the FY 1993 appropriations. Ten were included in the FY 94 budget request, however, none were funded by congressional action. These ten and two additional projects are included in the FY 1995 budget request. In addition, 17 other locations were identified as potential candidates for facility replacement for FY 1995. The remaining candidates are listed below.

Wilmington, DE; Richmond, VA; Morristown, NJ; Charleston, WV; Wilkes Barre, PA; Champaign, IL; East St. Louis, IL; Bedford, MA; Hyannis, MA; Medford, OR; Vero Beach, FL; Birmingham, AL; Savannah, GA; San Antonio (Stinson), TX; Harlingen, TX; Tulsa, TX; and Tucson, AZ.

STATUS OF ATCT ESTABLISHMENT SITES

Mr. CARR. Please update the status report on the four ATCT establishment sites funded in fiscal year 1993 (Newburgh, New York; Redmond, Oregon; Pullman Moscow, Washington; and Bellingham, Washington), similar in format to that shown on pages 739 through 740 of last year's hearing record.

[The information follows:]

NEWBURGH (STEWART), NY

The site has been tentatively selected by FAA. The estimated schedule is as follows: Construction Start, December 1995; Construction Complete, March 1997; and Commissioning, October 1997.

REDMOND, OR

Site selection has been completed and approved. Negotiations for site adaptation of a standard FAA control tower design are underway. The estimated schedule is as follows: Construction Start, April 1995; Construction Complete, January 1996; and Commissioning, October 1996.

PULLMAN MOSCOW, WA/ID

It has been determined that the tower will have to be sited off the airport. The estimated schedule is as follows: Construction Start, September 1995; Construction Complete, July 1996; and Commissioning, November 1996.

BELLINGHAM, WA

Design documents are 90% complete and are being reviewed. The estimated schedule is as follows: Construction Start, October 1994; Construction Complete, August 1995; and Commissioning, July 1996.

HOUSING UNITS

Mr. CARR. Please provide information on housing units for fiscal year 1995 funding, similar to that provided on page 743 of last year's hearing record.

[The information follows:]

Funding totaling \$8,000,000 will be used to complete engineering work and begin construction of 35 housing units and supporting infrastructure requirements such as: replacement water and sewer systems, a new electrical distribution system, and new roadways at King Salmon, Alaska. However, if opportunities surface to purchase suitable existing housing at King Salmon or other locations in Alaska, this funding may be used to take advantage of this less costly, but limited, alternative to new housing construction.

SEI AWARD FEES

Mr. CARR. Please update the table on SEI award fees, as shown on page 744 of last year's hearing record.
[The information follows:]

SEI AWARD FEE PERFORMANCE

Period	Total available	Actual fee awarded	Actual percent of available fee
1 (2/84-7/84)	\$1,391,655	\$1,078,532	77.5
2 (8/84-1/85)	2,097,138	1,727,810	82.4
3 (2/85-7/85)	3,546,121	2,593,473	73.1
4 (8/85-1/86)	5,372,929	4,037,111	75.2
5 (2/86-7/86)	6,658,405	4,853,093	72.9
6 (8/86-1/87)	7,610,533	5,305,315	69.7
7 (2/87-7/87)	8,628,034	6,542,590	75.8
8 (8/87-1/88)	8,274,915	6,111,022	73.8
9 (2/88-7/88)	7,434,361	5,538,242	74.5
10 (8/88-1/89)	7,266,642	5,296,890	72.9
11 (2/89-7/89)	5,728,225	4,353,451	76.0
12 (8/89-1/90)	5,668,776	4,535,022	80.0
13 (2/90-7/90)	5,570,272	4,539,772	81.5
14 (8/90-1/91)	6,057,680	5,031,510	83.1
15 (2/91-7/91)	6,867,594	6,002,689	87.4
16 (8/91-1/92)	6,376,790	5,668,966	88.9
17 (2/92-7/92)	6,073,644	5,399,470	88.9
18 (8/92-1/93)	5,639,812	5,143,509	91.2
19 (2/93-7/93)	5,205,981	4,706,207	90.4
20 (8/93-1/94)	5,201,136	4,790,246	92.1
	116,670,643	93,254,920	

Note.—Updated table includes revisions to prior years' information based on verification of contract records. Adjustments were necessary due to definitization of modifications which created changes in award fee.

SEI STAFFING TABLE

Mr. CARR. Please update the SEI staffing table found on page 744 of last year's hearing record.
[The information follows:]

TOTAL SEI STAFFING

Fiscal year	Baseline estimate	Previous estimate ¹	Current	Variance previous years
1984	² 287	333	333	0
1985	² 490	736	736	0
1986	² 799	1063	1063	0
1987	² 977	1133	1133	0
1988	² 1056	1189	1189	0
1989	² 1072	1177	1177	0
1990	² 970	1085	1085	0
1991	² 872	1045	1045	0
1992	² 733	882	882	0
1993	² 530	778	778	0
1994 ³	452	497	368	-129

¹ The total SEI staffing numbers include Martin Marietta and subcontractor staffing.

² Actuals.

³ The SEI contract has been extended (beyond its original expiration date of January 1994) to February 1995 to provide a bridge to the delayed award of the follow-on SETA contract and a transition period.

Note.—The changes in Fiscal Year 1992 and later years staffing reflect adjustments in anticipated funding. Outyear staffing estimates are based on projected requirements, labor rates and budgets.

TRW SETA CONTRACT

Mr. CARR. Please update data on the TRW systems engineering and technical assistance contract, as shown on page 745 of last year's hearing record, by providing data for fiscal years 1993 through 1995.

[The information follows:]

TRW SETA CONTRACT
(Dollars in Thousands)

	FY 1993	FY 1994	FY1995
Advanced Automation System:			
Staffyears	155	109	154
Funding	\$22,600	\$16,000	\$21,600
Voice Switching and Control System:			
Staffyears	60	80	76
Funding	\$8,700	\$11,100	\$10,700
Traffic Management System:			
Staffyears	4.6	9.4	9.4
Funding	\$581	\$1,323	\$1,323
Oceanic Automation:			
Staffyears	10.4	8.4	8.4
Funding	\$1,300	\$1,864	\$1,864
SARTS			
Staffyears	7.6	4.5	4.5
Funding	\$1,020	\$577	\$577
En Route Program Support			
Staffyears	3.6	4.5	4.5
Funding	\$441	\$582	\$582
Tower Program Support			
Staffyears	3.4	4.6	4.6
Funding	\$478	\$703	\$703
ARTS II Program Support			
Staffyears	6.3	7.7	7.7
Funding	\$887	\$943	\$943
ARTS III Program Support			
Staffyears	7.4	8.7	8.7
Funding	\$1,090	\$1,345	\$1,345
MAP Program Support			
Staffyears	15.6	18.6	18.6
Funding	\$1,983	\$2,386	\$2,386

DIGITAL RADAR DATA—NANTUCKET ISLAND

Mr. CARR. In last year's hearing (p. 748), the FAA said that the agency was committed to implementation of digital radar data in the tower cab at the control tower on Nantucket Island, Massachusetts, by the end of calendar year 1993. Did you meet that schedule? If not, why not?

[The information follows:]

The DBRITE was installed during November 1993 and it is providing target and alphanumeric display data to the Nantucket control tower. Enhancements planned for the existing video compression method of remoting DBRITE video have postponed the formal commissioning dates.

OFFSETTING COLLECTIONS

Mr. CARR. On page iii, you are projecting offsetting collections of \$118,105,000 in fiscal year 1994 and \$121,176,000 in 1995 after only \$28,967,000 in fiscal year 1993. What accounts for the large anticipated increase?

[The information follows:]

Offsetting collections are projected on historical data and current reimbursable agreements in place. We currently have agreements in place which total \$119 million for fiscal year 1994. For estimating purposes, we assume that the amount obligated will equal the dollar amount of the agreements in total. However, historically, the actual obligated amount fluctuates each year because many of these agreements are with non-Federal entities and have no expiration date tied to a particular appropriation. In other words, often the work preformed and associated obligations are spread over more than one year. Many of the agreements with Federal agencies are tied to appropriations that have a 2 or 3 year life for obligations. In fiscal year 1993, we estimated \$115 million based on agreements in place, but only \$29 million was actually obligated during the fiscal year. We expect a significant portion of the balance from fiscal year 1993 will be obligated in fiscal year 1994, increasing the total amount obligated in fiscal year 1994.

RESEARCH AND DEVELOPMENT WEATHER PROJECTS (ITWS/AWPG)

Mr. CARR. The FAA has been funding two research and development projects, the automated weather products generator (AWPG) and the integrated terminal weather system (ITWS), to meet air traffic controller needs in the en route and terminals air traffic control domains, respectively. Both projects are currently in the demonstration of alternative concepts phase, the third of five phases in the A-109 acquisition process.

FAA plans to complete this acquisition phase for ITWS in fiscal year 1995 and for AWPG the following year. Please provide an overall program schedule for both the integrated terminal weather system (ITWS) and the aviation weather products generator (AWPG).

[The information follows:]

The AWPG and ITWS projects are in the demonstration and validation phase, the third of five phases in the A-109 acquisition process.

INTEGRATED TERMINAL WEATHER SYSTEM OVERALL PROGRAM SCHEDULE

Demonstration/Validation OT&E	July to September 1994
Key Decision Point 3	January 1995
RFP Release	May 1995
Contract Award	August 1996
Critical Design Review	December 1996
OT&E Completed	February 1999
Key Decision Point 4	July 1999
First Site ORD of Initial Operational Capability	1999
Last Site ORD of Initial Operational Capability	2000

AVIATION WEATHER PRODUCTS GENERATOR* OVERALL PROGRAM SCHEDULE

Demonstration/Validation OT&E	
AFSS's	July to December 1995
ARTCC's and ATCSCC	July 1997 to May 1998
Higher Resolution Products	January to December 1999
Key Decision Point 3 AFSS's	March 1996
ARTCC's and ATCSCC	September 1998
Higher Resolution Products	Year 2000
Initial Operating Capability	
AFSS's	September 1996
ARTCC's and ATCSCC	March 1999
Higher Resolution Products	Year 2001

* Note: AWPG is software products that will be provided via task orders as pre-planned product improvements to the WARP and OASIS/GWDS programs. Thus there is no contract award specifically for AWPG products.

Mr. CARR. The justification state that fiscal year 1995 funds for ITWS will be used for demonstration and validation, full scale development, and completion of specifications and RFP for initial capability. Why are you budgeting for full scale development and initial production stages before you know the results of D&V?

[The information follows:]

The formal Demonstration/Validation OT&E, at Memphis and Orlando Air Traffic Control Towers, is scheduled to be completed by end of this summer. Key Decision Point 3 follows in January 1995. If we are to award a contract in FY 1996, we must budget for completion of the specification in fiscal year 1995.

We have very high confidence in the success of the ITWS Demonstration/Validation OT&E, evident by our extensive interaction with the use community.

Mr. CARR. FAA's current acquisition plan for ITWS indicates that the agency will award a contract for a combination of full scale development and production in early 1996. Given the problems experienced by FAA in doing concurrent development and production with the advanced automation system (AAS) and other modernization projects, why does FAA believe this approach is prudent?

[The information follows:]

The ITWS acquisition strategy calls for a full-scale development and limited production contract with an option for full production. Most Initial Operational Capability (IOC) products have been informally demonstrated, successfully. Formal demonstration begins in May and ends in September. We anticipate sufficient weather at the demonstration sites to demonstrate product capabilities. After successful demonstration, full scale development will be authorized following FAA and DOT KDP-3 review and approval. Production will not be authorized until the program receives KDP-4 approvals, scheduled for 1999. However, users of weather products will not have to wait until the very last product is complete to begin using and benefiting from early success.

Mr. CARR. Do you plan to receive stage-by-stage A-109 approvals for this program?

[The information follows:]

Yes. This program has already received both KDP-1 and KDP-2 approvals of the A-109 process. We will seek subsequent KDP approvals, as appropriate.

Mr. CARR. Have you quantified the estimated benefits of ITWS and AWPGE?

[The information follows:]

Yes. The benefit-cost ratio for ITWS is 6:1. For AWPGE, it is 4.5:1. Cost benefit ratios are based on life cycle cost estimate developed for key decision point-2.

Mr. CARR. ITWS will require integration and dissemination of a great deal of data within a short period of time in order to meet terminal airspace needs. How confident is FAA that ITWS will be able to meet such needs?

[The information follows:]

The FAA is very confident that it will meet terminal airspace needs. The integration and dissemination of weather data was successfully demonstrated, in real-time, during a pre-demonstration/validation exercise at the Orlando Air Traffic Control Tower, summer, 1993.

Mr. CARR. What human factors considerations for weather products will be included in ITWS testing to ensure timely, accurate, and consistent information without information overload?

[The information follows:]

Air traffic controllers have been involved in the design of the user interface since the inception of the ITWS. Color, look-and-feel, sound, and control of display are among the human factors consideration that air traffic controllers have examined

for the ITWS display. This design will be tested during the formal ITWS Demonstration/Validation OT&E, this summer, at Memphis and Orlando Air Traffic Control Towers.

Mr. CARR. AWPG will provide new en route products to controllers and eventually to pilots via its weather and radar processor (WARP) and the area control computer complex (ACCC) segment of AAS. Given the uncertain status of ACCC, is FAA developing an alternative strategy whereby AWPG products could be delivered to controllers via the initial sector suite system (ISSS)?

[The information follows:]

The AWPG products will be delivered to air traffic controllers, not pilots, on the common console, via the WARP, of the ISSS segment of the AAS. The AWPG does not rely upon the ACCC.

Mr. CARR. FAA's budget justification indicates that the agency will spend a total of \$281 million on these two projects. However, the agency's internal benefit cost analyses show that the two projects will cost almost \$600 million in total. Why is FAA under reporting AWPG/ITWS costs in its budget?

[The information follows:]

The FAA is not under-reporting AWPG/ITWS costs in its budget. The life-cycle cost estimate at KDP-2 was a rough order of magnitude estimate, based upon analyses of potential system architectures during the concept development phase. As we approach KDP-3 for AWPG and ITWS, alternative analyses will facilitate an improved estimate of the systems' life cycle costs. The FAA anticipates that the life cycle cost estimate will decrease.

The total program cost in the budget justification reflects funding for AWPG and ITWS contained in the agency financial plan. The funding in the plan will be revised after KDP-3 approval.

WARP—MISSION NEED STATEMENT & ACQUISITION PLAN

Mr. CARR. According to the GAO, you have completed a mission need statement and proposed acquisition plan for WARP, but you have not yet submitted them to OST for approval. Is this accurate?

[The information follows:]

The FAA will submit, by mid-May, the WARP acquisition plan and mission need statement to OST for approval.

WARP—DEVELOPMENT & LIMITED PRODUCTION

Mr. CARR. The GAO also indicates you plan to award a contract for full scale development and limited production for WARP in fiscal year 1995. Is this accurate, and if so, why are you budgeting for initial production stages before you know the results of FSD?

[The information follows:]

The FAA plans to award a contract for full scale development and limited production (three systems) for WARP in fiscal year 1995. We have budgeted for production systems beginning in FY 1996. However, they will be options in the WARP contract, and will not be exercised until the limited production systems have been fully tested. After the FAA has validated that all operational requirements have been satisfied, we will seek key decision point four (KDP-4) approval from OST to exercise the contract options for production and deployment.

AAS—SUPPORT CONTRACTOR FUNDING

Mr. CARR. Your budget request includes \$40,800,000 for AAS technical support. Please break this down by support contractor and provide a brief description of the role of each contractor.

[The information follows:]

The estimates for FY 1994 and FY 1995 are subject to change based on the findings and recommendations from the AAS Recovery Team appointed by the Administrator.

ADVANCED AUTOMATION SYSTEM
SUPPORT CONTRACTOR FUNDING ESTIMATES (\$M)

TRW/TRW Follow-on	\$21.60
Technical and engineering support, human factors engineering, and contract management support.	
MITRE	10.00
Research and engineering support including development of operational concepts and specifications, laboratory simulations, data evaluation, and risk mitigation.	
Volpe National Transportation Systems Center	2.10
Simulation and modeling; reliability, availability and maintainability and fault tolerance analysis; and local communications and other communications analysis.	
Jet Propulsion Lab	3.50
Research and development support including specification development, testing and engineering analysis primarily with regard to external interfaces.	
IV&V Support - contractor TBD	1.20
Independent verification that the development software meets FAA specifications.	
Program Management Support - contractor TBD	1.60
Program management support including LAN administration, database and documentation management, and administrative and operational support to the AAS Development and Demonstration Facility.	
Other	.80
Other small contracts required to execute the program.	
Total Requirement	\$40.80

AAS—FIELD SUPPORT

Mr. CARR. How would the \$29,000,000 requested for AAS "field support" be used?

[The information follows:]

The estimates for FY 1994 and 1995 are subject to change based on the findings and recommendations from the AAS Recovery Team appointed by the Administrator.

Advanced Automation System Implementation Support—1995 Program

[Dollars in millions]

FAATC test support	\$20.0
ARTCC site preparation	1.5
FAA Academy	0.5
Regional site support	6.0
ATR technical support	1.0
Total	29.0

AAS—PRIME CONTRACT PROCUREMENT FUNDING

Mr. CARR. Your budget proposes \$28,800,000 under the procurement and modernization budget activity for the AAS prime contract. What exactly are these funds for, and what is being procured or modernized?

[The information follows:]

The estimates for fiscal year 1994 and fiscal year 1995 are subject to change based on the findings and recommendations from the AAS Recovery Team appointed by the Administrator.

In fiscal year 1995, \$28,800,000 is requested in Activity 2 funding for the start of full production of ISSS systems.

AAS—ARTCC MODERNIZATION FUNDING

Mr. CARR. Please provide a detailed breakdown and description of the \$7,600,000 in AAS funds requested for ARTCC modernization.

[The information follows:]

The estimates for fiscal year 1994 and fiscal year 1995 are subject to change based on the findings and recommendations from the AAS Recovery Team appointed by the Administrator.

As in past years, the AAS program has supplemented the ARTCC Modernization program to accomplish facility site preparation for AAS equipment, such as, the ISSS control room renovation and the power system modification.

The \$7,600,000 is budgeted to fund the ISSS control room renovations for 2 sites: Albuquerque and Oakland ARTCCs.

ASR-11 SCHEDULE AND COST

Mr. CARR. What is your overall schedule for the ASR-11 program and what is its total estimated cost?

[The information follows:]

The ASR-11 program is scheduled for Department of Transportation Systems Acquisition Review Council approval to advance to Key Decision Point 2/3, "Full-Scale Development", in May 1994.

Contract Award is planned for December 1995.

Testing will be completed by August 1998, with a request for Key Decision Point 4, "Full Production", to follow in November 1998.

The first planned Operational Readiness Date is in June 1999, and the last Operational Readiness Date in December 2004.

The ASR-11 program is a joint program with the Department of Defense. The Federal Aviation Administration estimated program cost is \$799.6 million for 120 radars, presuming that all options are exercised.

SYSTEM SUPPORT LAB IMPROVEMENTS

Mr. CARR. On page 16, you state that future requirements for improvements at the systems support lab at the Technical Center will be validated on a year-to-year basis. Why can't you predict what future improvements will be needed at this facility?

[The information follows:]

The need for improvements to the System Support Lab is directly related to when new systems are expected to be delivered for test and evaluation. Although the FAA Technical Center has a Transition Plan in place that covers projected requirements to the year 2000, the requirements must be validated each year to account for schedule changes to CIP projects which impact system deliverables to the Technical Center.

TECHNICAL CENTER OPERATION AND MAINTENANCE FUNDING

Mr. CARR. On page 19, you are requesting \$9,000,000 for F&E funded operation and maintenance of the Technical Center. This compares to \$7,000,000 for fiscal year 1994. How was this figure calculated and what is included in it?

[The information follows:]

Facility costs for the operation and maintenance of the NAS systems in the Technical Center laboratories are forecast for the budget year. The costs calculated include: software license fees, hardware maintenance contracts, computer operators, and parts, supplies and equipment. They are then assessed to each appropriation based on usage. Facilities and Equipment (F&E) costs are based upon the anticipated hours required to support individual F&E projects by the users.

The cost has increased primarily because this is the first year that the operation and maintenance of the Human Factors Laboratory is included in this budget item.

PRECISION AUTOMATED TRACKING SYSTEM (PATS)

Mr. CARR. Please provide a detailed description of the objectives and estimated benefits of the precision automated tracking system (PATS).

[The information follows:]

The FAA Technical Center requires a highly accurate, state of the art mobile laser tracking facility to provide positioning data in support of GPS, Mode S, ILS, MLS, TCAS, and other flight test programs requiring qualification, operational tests, and evaluation. The Technical Center currently is using a 1975 vintage PATS which is obsolete and no longer maintainable.

The operational benefits of a new PATS would be an appreciable savings in system maintenance and repair costs and increased on-line availability of the system resulting in fewer delays in flight test schedules.

The procurement of a basic PATS system is underway with FY 1994 funding. The RFP was released in April 1994, with contract award anticipated by the middle of August 1994. The subject FY 1995 funding request is for enhancements to the basic system such as ground to air telemetry, on-site plotting and display, remote designate capabilities from an acquisition device or other tracking system, and other options.

PATS—INITIAL PROCUREMENT FUNDING

Mr. CARR. The justifications state that fiscal year 1995 funds for PATS would be used to "execute priced options in the initial procurement." Is this really for procurement, and if so, why is it budgeted under "engineering, development, test and evaluation"?

[The information follows:]

All of the FAA Technical Center's laboratory facilities are budgeted under Activity 1, Engineering, Development, Test, and Evaluation. PATS is a laser tracker which will be part of the Technical Center's test and evaluation facilities.

LONG RANGE RADAR IN MAINE—STATUS AND SCHEDULE

Mr. CARR. On page 24, you are requesting second year funding of \$10,000,000 to install a long range radar in Maine. What is the status of this project to date, and what is your future schedule?

[The information follows:]

The radar, spares, tower, test equipment and training have been purchased and Caribou, Maine has been selected as the site. It is planned to complete environmental studies and the site design by November 1994 and have construction and installation completed by September 1996.

MAINE LONG RANGE RADAR—FUTURE FUNDING REQUIREMENTS

Mr. CARR. Will F&E funds be needed for this system beyond fiscal year 1995?

[The information follows:]

No additional F&E funds are planned for the Maine radar past fiscal year 1995.

NEXRAD—FUND FOR REGIONS/CENTERS

Mr. CARR. On page 30, you are requesting \$10,000,000 in NEXRAD funds for "regions/centers." How would these funds be used?

[The information follows:]

Funds for regions/centers will be used for land acquisition and site preparation activities at NEXRAD locations in Alaska, Hawaii, and the Caribbean. Activities include road construction, utilities, survival shelters and ice shields in Alaska, and power conditioning systems.

INCREASE FOR EN ROUTE RADAR FACILITIES

Mr. CARR. You are requesting a large increase in the en route radar facilities improvements program (from \$5,400,000 to \$8,898,000). Why is such an increase needed, and what specific systems are to be improved?

[The information follows:]

The increase is required to fund radome replacements that are needed to accommodate larger Mode S antennas at en route radar sites.

DISPLAY CHANNEL COMPLEX

Mr. CARR. Under separate budget line items, FAA is requesting \$2 million in spare parts to sustain the display channel complex (DCC) and \$4 million to sustain other en route hardware while waiting for ISSS.

In previous years, FAA funded a potential DCC replacement as an interim step to ISSS. How soon could a DCC replacement be developed, tested, and installed?

[The information follows:]

FAA has continued to look for alternatives to the Display Channel Complex (DCC) even though the previous interim solution was terminated. At least 2 alternatives exist. It is expected that development, testing, and first site installation of these alternatives would require approximately 3 years following the year of initial appropriations for such an effort.

DIRECT ACCESS RADAR CHANNEL SYSTEM

Mr. CARR. Will FAA have to take other steps such as replacing the back up direct access radar channel (DARC) system to sustain the en route centers considering the major delays now estimated for ISSS?

[The information follows:]

There are no plans at this time to replace the DARC system prior to 1999.

Based upon the result of the recovery teams and the associated schedules of the recovery plans, we will need to evaluate the necessity to replace certain hardware such as the Display Channel or the Plan View Display. Preliminary work has been initiated regarding replacing the Display Channel.

ANALYSIS OF EN ROUTE CENTER EQUIPMENT PERFORMANCE

Mr. CARR. In August 1991, the General Accounting Office (GAO) recommended that FAA strengthen its equipment performance analysis especially regarding old en route center equipment by analyzing databases in its maintenance management system. What steps has FAA taken to analyze and project en route center equipment performance trends in response to the GAO?

[The information follows:]

The following actions were taken by FAA in response to the GAO audit recommendations of August 1991:

A performance analysis requirements study, which identified the requirements for improved performance reporting on the O&M (Operations and Maintenance) status of NAS facilities, was completed in December 1992. National reporting of corrective maintenance log data, which is required for analysis by FAA headquarters, was implemented in July 1993.

An Equipment Performance Analysis Tool which will be used to analyze corrective maintenance data, was completed in September 1993. An upgrade to Maintenance Management System software to capture data on lowest-replaceable unit (LRU) failures, was deployed with MMS version 4.1 in February 1994.

VOICE SWITCHING & CONTROL SYSTEM TSARC DECISION

Mr. CARR. The FAA has contracted with Harris Corporation for continued development and production of the voice switching and control system (VSCS), which will provide ground-to-ground and air-to-ground communications capabilities. FAA is requesting \$231.2 million in fiscal year 1995 funds for VSCS.

At the time of last year's budget deliberations, FAA projected that a full production decision would be made in December 1993. The Transportation Systems Acquisition Review Council (TSARC) met in March 1994 to decide on full production for VSCS. What was the result of that meeting? When does FAA anticipate a full production decision?

[The information follows:]

The TSARC decided that quarterly updates be given the OST Assistant Secretary for Administration.

(a) the FAA acquisition executive approves each order (one per month) based on continued successful program progress reports provided to the Acquisition Review Committee each month.

(b) long lead items could continue to be ordered to support production systems.

(c) a full production decision would be delayed until the successful completion of OT&E on the VSCS ORD build.

We anticipate a full production decision in March 1995.

VSCS AVAILABILITY CONTRACT SPECIFICATIONS

Mr. CARR. Based on system development to date, does FAA believe that VSCS will meet its high availability contract specification?

[The information follows:]

Based on VSCS system development and performance data the availability already meets the contract specification. This assessment is based on the VSCS hardware performance for development items, commercial off-the-shelf components and for all systems currently operating in testing modes.

VSCS—MAINTAINING SCHEDULE

Mr. CARR. Last summer, the Harris Corporation submitted a revised project schedule projecting additional schedule slippage. FAA did not accept that schedule. Why not?

[The information follows:]

Extending the schedule would have dramatically increased the cost in accomplishing the program. Alternatively the FAA and Harris management team agreed to the following actions that mitigated proposed schedule slippage:

- (a) Combined three scheduled software drops into two.
- (b) Utilize the prototype system at the FAATC to run parallel testing, thereby reducing sequential activities.
- (c) Utilize the Salt Lake and Denver production systems in the test beds to verify production software releases.

VSCS—ISSS SOFTWARE PRODUCTION

Mr. CARR. Much of the software for VSCS ISSS capability, 18 to 20 percent, will not be tested until late this year. The software is required to support the automatic reconfiguration capability. Given the amount of development work that remains and the projected major slippage in the ISSS schedule, why does FAA believe it needs to move into production at this time?

[The information follows:]

The fundamental change required to implement capability required for ISSS is Simultaneous Kernel. The Simultaneous Kernel is the change to the VSCS data structure that allows sectors in the centers to have their air-to-ground and ground-to-ground resources reconfigured in parallel (i.e. simultaneously). The previous approach was to reconfigure each sector one at a time. This function has been incorporated in the software package being developed for ORD at Seattle, and successfully tested at the FAA's Technical Center in March 1994. On the VSCS program, only a small part of this software is needed to support the AAS/ISSS system. The major part of the VSCS ISSS software drop (5% additional coding) supports additional functionality to provide operational enhancements and supplemental ISSS reconfiguration capabilities.

Because the VSCS ISSS software build is small and is not required for VSCS to be declared operationally suitable as a communication system for the existing M-1 control room there is very low risk to the program by continuing to produce VSCS hardware. Additionally, an analysis of the impact on the program cost of delaying the continued production of VSCS software until the completion of the ORD operational test at the FAA Technical Center showed that such a delay would increase cost by an estimated \$100 million. This estimate was based on a joint FAA/vendor review of the entire program which was presented to the FAA Acquisition Review Council and subsequently to the OST Transportation Systems Acquisition Review Council in March 1994.

VSCS-430 POSITION SWITCH OPERATIONAL REQUIREMENT

Mr. CARR. FAA is purchasing a VSCS that will support 430 controller positions. In years past, FAA stated that this requirement was driven by consolidation. FAA now asserts that this 430 posi-

tion requirement is driven by the need to simultaneously support the old M-1 consoles and ISSS during transition. Given that ISSS transition will be done sector-by-sector, what is the true operational requirement for the 430 position switch?

[The information follows:]

When the VSCS specification was prepared in 1983, both the ACF consolidation and need for VSCS to operate in both the existing and new control rooms during ISSS transition drove the VSCS sizing requirement. After the consolidation plan was revised, the VSCS size was re-evaluated. The ISSS transition was found to impose essentially the same sizing requirements as did consolidation.

The ISSS sector-by-sector transition plan has been reviewed by the FAA and does not reduce the VSCS sizing requirement. That is, if the VSCS size were reduced based on a sector of the old control room being permanently transitioned to the new control room, both the existing HOST and AAS/ISSS would have to be operating simultaneously as operational systems. This would dictate that operational readiness be declared on a sector of the AAS/ISSS before the entire center had been tested using the AAS/ISSS software.

To avoid risk it is necessary that VSCS "shadow" communications in the existing M-1 control room until all the sectors have been successfully transitioned. This "shadowing" capability drives the VSCS position sizing to the current specification sizing requirement.

REQUIREMENT FOR BACKUP EMERGENCY COMMUNICATIONS SYSTEM

Mr. CARR. FAA is requesting \$3,000,000 to replace the backup emergency communications (BUEC) system at en route centers. Why is a new BUEC system necessary if VSCS is expected to have such high levels of reliability?

[The information follows:]

The VSCS is an internal switching system which has nothing to do with the external transmission path in the communication system (where most outages occur). The Backup Emergency Communication (BUEC) system is a backup to the radios and transmission path portion of the communication system. BUEC can operate with or without VSCS. The BUEC system is not intended to backup the VSCS system, but rather, is driven by it.

The existing BUEC system is expensive to maintain. The hardware and technology are obsolete, and spare parts are no longer available. The FAA Depot has contracted, at great expense, for reverse engineering, and remanufacture of the necessary parts to continue to support the original BUEC system over the past few years. The existing BUEC system has been identified as a high priority maintenance concern for the FAA.

TERMINAL DOPPLER WEATHER RADAR SITING PROBLEMS

Mr. CARR. The terminal doppler weather radar (TDWR) is a weather radar designed primarily to detect hazardous weather conditions such as wind shear and microbursts around airports and to send this information to air traffic controllers.

The FAA is procuring 47 TDWRs from the Raytheon Corporation. Funds for the 47 radars have been provided in previous fiscal years. Implementation of the first TDWR has been delayed from June 1993 to at least April 1994, and FAA is unable to provide a last site implementation date because one-third of the sites need to be relocated due to objections of local citizens or environmental problems. The TDWR has been under contract since 1988. Why has FAA only now discovered these siting problems?

[The information follows:]

The TDWR siting activities started about a year after the TDWR contract award. This delay was caused by a protest of the siting contract award. Since that time, the FAA has prepared the environmental impact statement and identified specific sites for the radars. A number of problems have been encountered at specific sites

throughout the siting process. These problems include environmental concerns (wetlands, Native American artifacts, endangered species, and hazardous waste), real estate concerns (landowners changing their minds on selling sites, inability to agree on a price for the land, etc.) and public opposition. All of these issues are worked as soon as they are identified. At the present time, sites have been identified for 43 locations. We will continue to examine alternatives for the remaining four locations.

TDWR CONTRACT FOR DELIVERY

Mr. CARR. What actions does FAA intend to take?

[The information follows:]

The contract for delivery of TDWRs has been extended to match the expected site availability. Sites for four systems may not be available until the TDWR contract has ended. If this is the case, the FAA will install these systems under a separate contract.

TDWR—ADEQUATE DETECTION CAPABILITY

Mr. CARR. Presumably the FAA had chosen the best sites for these radars initially. Therefore, can we assume that changes in sites will reduce the effectiveness of the TDWR in detecting microbursts and wind shear?

[The information follows:]

At nearly every TDWR location, there is more than one location that will provide adequate detection of microbursts and wind shear at the airport. When sites need to be changed, this capability is not impacted. What is usually impacted in these site changes is the total site cost (longer utility runs, longer access roads, etc.) or the coverage of weather conditions at longer ranges. For example, if a TDWR site must be shifted from one side of the airport to the other side, the coverage of wind shear at the airport will not be affected but the detection of weather conditions approaching the airport might not be optimum.

TDWR—MAJOR CAUSE FOR DELAY

Mr. CARR. FAA paid incentives to Raytheon for early delivery of the TDWR. However, operational testing has now revealed problems with the radar which are delaying implementation. What is the major cause of the delay, and why were those problems not discovered during factory testing of TDWR?

[The information follows:]

The problems detected during operational testing of the TDWR primarily concerned system reliability in two areas. These areas are antenna pedestal motors and computer interrupts. The failure in the pedestal motors only occurred after the system had been operated for several months. The motors operated without problem during the period of factory tests. The computer interrupts were random intermittent failures of short duration that occurred every several days when the system was operated without changing channels. The factory tests were designed with frequent channel changes to put the maximum stress on the system. The attempt to put maximum stress on the system during tests allowed this particular problem to go undetected until operational testing.

REAL TIME WEATHER PROCESSOR (RWP)—IG REPORT

Mr. CARR. The FAA has combined en route weather requirements from its meteorological weather processor [MWP] and the real time weather processor (RWP) into a new project called the weather and radar processor (WARP). FAA has approved the mission need statement for WARP and intends to award a full scale development and limited production contract using \$4,700,000 in fiscal year 1995 funds.

The IG issued a report in December 1993 which recommended that FAA conduct an operational demonstration with the existing RWP prototype in order to gain more information on controller requirements before proceeding with additional procurement (such as will be purchased under WARP). Does FAA agree with the OIG recommendations regarding RWP? If not, why not?

[The information follows:]

The FAA does not agree with the OIG report regarding RWP. The RWP prototype validated the functionality of producing weather radar mosaic products. Since the RWP was developed, commercial industry has developed this capability. We have changed our acquisition strategy to take advantage of technology advances by commercial industry, and will procure a primarily off-the-shelf weather system that will be more cost effective than continuing with the RWP acquisition. We do not believe it is in the best interest of the Government to continue expending funds testing the RWP prototype, since the software was fully tested through development testing. WARP will be fully tested through an operational test to ensure that performance satisfies all validated requirements.

WARP—RISK REDUCTION ACTIVITIES

Mr. CARR. What risk-reduction activities does FAA intend to pursue as part of WARP concept demonstration/validation before proceeding into full scale development?

[The information follows:]

The FAA will provide industry with a draft request for proposal RFP) for their review and comment. The final RFP will also include the RWP prototype design documentation and software code as government furnished information (GFI). The design documentation will show industry exactly how the RWP prototype acquired and processed weather radar data. In addition, as part of the technical evaluation of proposals the FAA will require an operational capabilities demonstration (OCD) of all bidders. This will insure that the winning contractor has a commercial by available system as a baseline to build upon.

WARP ACQUISITION STRATEGY

Mr. CARR. FAA originally intended RWP to work with the area control computer complex (ACCC) segment of AAS. In this year's budget justifications for WARP, it states that WARP funding is needed to meet testing dates for the initial sector suite system (ISSS). Has FAA accelerated its weather requirements to the ISSS segment? Given ISSS schedule delays, does FAA still need to award a WARP contract in fiscal year 1995?

[The information follows:]

The WARP acquisition strategy is a staged approach to satisfy two mission needs: mosaicing NEXRAD radars and providing the mosaic product for air traffic display and the replacement of the existing Meteorologist Weather Processor system (MWP I). The FAA has decided to take advantage of the opportunity to provide these mosaics earlier to controllers through the ISSS segment of AAS. Even if ISSS were delayed, there is still a need to award a WARP contract in fiscal year 1995 to satisfy the second mission need.

RWP SOFTWARE TO WARP CONTRACTOR

Mr. CARR. Given serious problems with RWP software cited in test reports, why does FAA intend to furnish the RWP software to the WARP contractor?

[The information follows:]

The RWP software was developed to FAA software standard 2167.A, and the intended functionality was validated through development testing. The aforementioned problems were not with the functionality of the software but, rather, with its operational suitability. Since the FAA does not plan to utilize this software oper-

ationally it will be provided to industry for information only. Providing the RWP prototype software as "government furnished information" (GFI) will not require the contractor to use the software, but will show the WARP contractor what algorithm techniques the FAA employed for compositing and mosaicing. Although offerors are not required to use GFI, the information is made available as guidance. Further, offerors won't have to expend resources attempting to figure out the algorithm techniques employed for compositing and mosaicing. Additionally, the WARP contractor will have access to communication software, which is compatible with software expected to interface with WARP. This will minimize the technical risk and cost for the acquisition.

DBRITE FUNDING/BENEFITS

Mr. CARR. Digital bright radar tower equipment (DBRITE) is used to assist tower controllers in identifying and sequencing air traffic. The FAA previously purchased and deployed 258 DBRITEs. It now intends to purchase an additional 130 DBRITEs under a sole source contract. FAA is requesting \$2,700,000 in fiscal year 1995 funds for the new DBRITE procurement. How many DBRITEs does FAA intend to purchase with the fiscal year 1995 funds?

[The information follows:]

The fiscal year 1995 funding should be sufficient to exercise one contract option for equipment at 17 locations.

Mr. CARR. Has FAA measured any safety or efficiency benefits from the original 258 systems as support for this new procurement?

[The information follows:]

DBRITE terminal traffic data reduces the risk of terminal area collisions by providing controllers improved visual display of aircraft position information in high ambient light conditions found in airport traffic control towers. DBRITE provides controllers with improved capability to positively identify aircraft. As a result, the controllers can better guide lost or disoriented pilots.

The benefit/cost analysis done for the new equipment has shown that:

Establishment of DBRITE has resulted in reduced delays. During high volume and/or reduced visibility conditions, DBRITE has been estimated to reduce flying time by 2.5 minutes.

DBRITE has much greater reliability than predecessor equipment. These new systems have resulted in a reduction in maintenance labor of approximately 90 percent for air traffic control tower display systems.

DBRITE—BENEFIT/COST DATA

Mr. CARR. Does FAA have benefit/cost data to support DBRITE sites to be funded in fiscal year 1995?

[The information follows:]

Yes. At initiation a benefit/cost analysis was performed for the program in total which served to cover all locations. This analysis resulted in an overall program benefit/cost ratio of 1.23/1. There are no current plans to perform benefit/cost analyses for individual sites.

FAA ACQUISITION POLICY AND PROCEDURES

Mr. CARR. Over the past several years, the FAA has made progress in putting its acquisition policies and procedures in accordance with generally accepted Federal guidance, particularly OMB Circular A-109. However, the GAO and others continue to report that problems exist. Why is FAA not moving faster to issue detailed guidance on new acquisition policy documents such as operational requirements documents and risk management plans?

[The information follows:]

The FAA has begun a comprehensive acquisition policy modernization initiative to reduce the steps in the acquisition process to the minimum effective set; consolidate the 140 acquisition-related FAA orders into a single, comprehensive, multi-volume set; and issue detailed guidance for use by acquisition specialists in the development of critical program documentation such as risk management plans and operational requirements documents. Several important products are well along in their development. These include detailed guidance of the development of risk management plans; a manual to assist in the preparation of specifications for NAS systems, equipment, and services; comprehensive, tailored policy for the acquisition of facilities; a handbook on test planning, conduct, and reporting; an improved process for independent operational test and evaluation; a comprehensive instruction for the development of test and evaluation master plans; detailed policy governing the transition of systems and equipment from development to operation in the field; and an instruction on the preparation of program implementation plans.

MISSION NEED STATEMENTS

Mr. CARR. FAA currently still lacks a feedback loop at the end of a new system's deployment that would measure system performance and effectiveness and thus put the agency in a position to generate well-supported mission need statements. What is FAA doing to address this problem?

[The information follows:]

The FAA is working aggressively to achieve this capability. The process steps and work elements necessary to support mission need statements with the performance and effectiveness of systems in the field have been identified (Mission Need Determination Report, dated August 23, 1993). A follow-on Requirements Determination Quality Act Team chartered by the Acquisition Management Quality Management Board is now developing a policy document and implementation plan for instituting that capability within FAA. The policy document will define a process that first determines and then compares the performance and effectiveness of systems operating in the field with what will be required to meet current and future needs of our customers. A mission need statement will be generated only when a capability shortfall is identified and that shortfall cannot be satisfied by low-cost, non-acquisition means. The implementation plan will define time-phased activities for instituting the capabilities and responsibilities necessary for evolution from the existing qualitative methodology of mission need analysis to a data-driven, quantitative process. The mission need analysis policy document is scheduled for completion in June 1994 with the implementation plan to follow by September 1994.

MISSION NEED STATEMENT PROCESS—GAO REPORT

Mr. CARR. What actions has FAA taken in response to GAO's report on the mission need statement process "Air Traffic Control: Justifications for Capital Investments Need Strengthening" (GAO/RCED-93-55)?

[The information follows:]

The GAO report contains two recommendations:

1. Approve only those mission need statements that are well supported with analytical evidence of current and projected needs.
2. Revise the FAA's guidance on mission need statements to emphasize mission analysis as the starting point for acquisitions.

Regarding the first GAO recommendation, all mission need statements must be reviewed by a senior-level review board, the Acquisition Review Committee (ARC), and approved by its Chairperson, the FAA Acquisition Executive. Analytical evidence of need, demonstrated by quantitative data, is a principal consideration in the ARC's deliberations. Over the past year, numerous mission need statements have been disapproved for lack of quantitative data or well substantiated evidence of need. Other mission need statements, that might have been presented for approval in the past with a lack of supporting quantitative data, are now being more comprehensively prepared before submittal.

Regarding the second GAO recommendation, all published guidance on mission need statements has been revised to emphasize data-driven, quantitative mission analysis. FAA's comprehensive new acquisition policy, Order 1810.1F, stresses this new requirement and provides specific instructions in this regard for mission need

statement document preparation. New revisions to the FAA's Capital Investment Plan and RE&D Plan process documents emphasize mission analysis, clear definition of need, and use of quantitative, substantiated data. Instructions for the presentation of mission need statements to the ARC for approval now require the inclusion of quantitative data to support the need for the program. In addition, there is an ongoing effort to institute the capability to systematically determine future mission needs based on substantive, quantitative evidence. Guidance documents will be revised to reflect additional improvements in mission analysis as recommendations emerge from the working group conducting this effort.

ACQUISITION PROCESS REFORM—MAJOR ACCOMPLISHMENTS

Mr. CARR. What does FAA view as its major accomplishments in reforming its acquisition process over the last year?

[The information follows:]

FAA has made many significant accomplishments. They include the following: Top-level acquisition policy was revised and reissued to fully implement OMB Circular A-109 and DOT policy. The new FAA policy presents a comprehensive overview of the entire acquisition process. It radically changes the way policy is presented and greatly clarifies the process by showing acquisition as a sequence of events, clearly defining the required output of each step and specifically identifying who is responsible for accomplishing the work.

An Acquisition System Configuration Control Board was established to manage FAA acquisition policy. This new approach fosters a system view of acquisition, streamlines the policy review and approval process, and consolidates control of the process. The Board is supported by a computer-based analytical tool used to rigorously and systematically identify and eliminate redundant or unnecessary process requirements.

Policy was revised for several functional areas including Integrated Logistics Support, Deployment Readiness Review, Human Factors, and procurement. Requirements determination and program identification methods were clarified and enhanced. The elements of mission analysis required for the generation of quantitative Mission Need Statements were defined. The process of development of the Capital Investment Plan and the Research, Engineering and Development Plan were refined for the fiscal year 1995 budget cycle. Several procurement policy documents were canceled or replaced with guidance, and some internal processes were streamlined.

The Credit Card Program continues to be strongly encourage for purchases below \$25,000. Use of credit cards has increased and additional new users are anticipated in the near future. Under Title II, Federal Aviation Act Amendments, Section 303 was amended to provide the FAA with authority under section 2304(c)(1) of Title 10, USC to limit competition. During the past year, FAA streamlined certain acquisitions using this authority. Also under this Title, authority was granted to FAA to enter into a contract, on a sole source basis, to operate an airport traffic control tower classified as a level I visual flight rules tower. This authority has allowed contract awards to be made in an expeditious manner.

There were numerous initiatives across the acquisition community to provide tools and information to enable acquisition professionals to accomplish required tasks. Examples include guides for preparation of 21 required planning documents, an update to the Acquisition Guide for Program Managers which provides practical "how-to" guidance, a training manual for the conduct of independent operational test and evaluation, and structured formats for presentations to the Acquisition Review Committee and for Major Acquisition Reviews.

ARC—MAJOR ACCOMPLISHMENTS

Mr. CARR. What does FAA view as the major accomplishments of the ARC during this past year?

[The information follows:]

During the past 12 months, the ARC has reviewed approximately 140 proposed acquisition actions. About 50 percent of the proposed actions were not approved by the ARC for various reasons, and many are being reworked for resubmittal. The major accomplishment has been the gradual recognition on the part of the program sponsors and managers that the requirement for ARC approval of Mission Need Statements and other acquisition documents must be met or the program will not be approved. The submittals have improved considerably, and initiatives have been

launched to improve the FAA's ability to develop and gather the quantitative information required to support mission needs.

ACQUISITION PROCESS—IMPROVEMENT PLANS

Mr. CARR. What actions does FAA plan in the near future to improve its acquisition process?

[The information follows:]

There are many initiatives planned or underway for improvement of FAA's acquisition process. The following are some of the more significant ones.

In 1994 we will begin a multi-year effort to reengineer the acquisition system. The goal of this effort is to establish an optimized acquisition system that will let FAA operate more like a business. The reengineering team will identify fundamental processes, streamline those processes to essential, customer-focused, product-oriented tasks, determine information requirements, develop tools, and restructure the FAA so that available resources are effectively focused on those essential tasks. A key part of acquisition system reengineering is an initiative known as policy modernization. Policy modernization will substantially reduce the number of internal regulations and improve the presentation of process information in a single, comprehensive policy document. There is also a related effort to reduce internal regulations in the contracting area.

The Integrated Product Development System (IPDS) will be implemented on a pilot basis for three major acquisitions in 1994. IPDS is a program management approach that extends and enhances the current matrix management approach. It establishes cross-functional, product oriented teams for program planning and decision-making and improves the responsiveness of the overall acquisition process. IPDS will be fully implemented in conjunction with acquisition system reengineering.

The planning and scheduling process for acquisition programs is being overhauled to provide timely, accurate, and credible programmatic information. Results will include issuance of an FAA program planning guidance document, incorporation of all acquisition programs into one master schedule system and standardization in the establishment and control of schedule baselines and milestones.

Forty-five specific initiatives that require no external approval have been identified and will be accomplished. These initiatives include actions related to requirements determination, acquisition policy and procedure, workforce education and tools, communication with industry, contracting, and oversight.

DIAMOND HEAD CENTER/RADAR APPROACH CONTROL FACILITY

Mr. CARR. Last year, the FAA planned to begin construction of a new combined center/radar approach (CERAP) control facility in fiscal year 1996. What is the current status and estimated schedule for this effort?

[The information follows:]

Two recent FAA decisions have delayed progress on the Honolulu CERAP relocation and construction: limited consolidation and the indefinite postponement of the Area Computer Control Complex (ACCC) of the AAS program. Based on these changes, a report to assess the requirement to relocate the facility, identify potential automation equipment alternatives and review the effect of limited consolidation is currently underway.

DIAMOND HEAD CERAP BENEFIT/COST STUDY

Mr. CARR. The current site is in Diamond Head crater in Honolulu. Even though the FAA originally planned to expand the existing facility, the Hawaii Congressional delegation favored a new site. Has the FAA performed a benefit-cost study comparing alternative sites for the new facility?

[The information follows:]

A Honolulu CERAP relocation conceptual engineering report was completed February 1993. The report contains the analyses of 4 alternative general areas and information was gathered on specific sites.

PHILADELPHIA AIRPORT PRECISION RUNWAY MONITOR

Mr. CARR. According to the most recent analyses, does Philadelphia International Airport qualify for a precision runway monitor, and if so, are there other sites which don't have such a radar and have a higher requirement?

[The information follows:]

According to the most recent analyses, based on plans to complete installation of a new commuter runway by 1999, Philadelphia International Airport qualifies for a precision runway monitor (PRM) radar. No other site presently demonstrates a higher requirement.

ALASKA NEXRAD SYSTEMS

Mr. CARR. What is the current status of efforts to install NEXRAD systems in Alaska, and what is the benefit-cost ratio of adding two additional systems to the seven already planned for Alaska?

[The information follows:]

As directed in the Fiscal Year 1993 Appropriations Act, the FAA has installed Air Force (single channel) NEXRADs at Anchorage and Fairbanks. These systems will be upgraded to the FAA dual channel configuration in 1995. The King Salmon NEXRAD will also be installed in 1995. The remaining four NEXRAD's in Alaska (Bethel, Nome, Middleton Island, and Sitka) will be installed in fiscal years 1996 and 1997.

The benefit-cost ratio for an additional NEXRAD at McGrath, AK, is 0.091. The benefit-cost ratio for additional NEXRAD at Cold Bay, AK, is 0.086. Sites need to have a benefit-cost ratio of 1.0 or higher to be considered beneficial.

ADVANCED LANDING SYSEM

Mr. CARR. What is the FAA's view of the advanced landing system (ALS), and are any funds included in the fiscal year 1995 request for that technology?

[The information follows:]

Advanced Navigation & Positioning Corporation (ANPC) of Hood River, Oregon is developing the Transponder Landing System (TLS) (previously called ALS) for use as a non-Federal navigation aid that can be certified under the provisions of the Federal Aviation Regulation Part 171. The TLS uses a transponder-based ranging technology to provide instrument landing system (ILS) category I equivalent course guidance. The technology limits the TLS to single aircraft approaches, but it allows the system to be sited at locations where a conventional ILS cannot be located. Although the TLS ground equipment is more expensive than an ILS, total installation costs may be less at locations where an ILS would require extensive site grading. Because the TLS uses existing aircraft avionics, this makes the system a potentially attractive candidate for non-Federal approaches at low density airports or private use facilities where an ILS cannot be sited. TLS development is being partially supported by the Advanced Research Projects Agency (ARPA). The technology shows very good potential for use in a tactical military environment. The FAA is prepared to provide flight test support to the ARPA effort, and is directly supporting ANPC's efforts to certify the system for non-Federal use in category I precision landing operations. However, we have no funds allocated in 1995, nor in the out-years, for developing TLS technology, nor for acquiring or installing TLS equipment. If the system can be demonstrated to achieve the appropriate accuracy and integrity requirements, we would consider the TLS for its intended purpose: approach and departure guidance at low-density airports.

VSCS—LACK OF ENGINEERING DEVELOPMENT FUNDING

Mr. CARR. You are requesting no funding under "engineering development, test and evaluation" in fiscal year 1995 for the VSCS program. A total of \$231,200,000 is included under "procurement

and modernization of ATC facilities and equipment." However, I understand that there is significant development work remaining, particularly in the software. In fact, OST has put restrictions on the production rate because of the remaining development work. Given this, why aren't you showing any portion of fiscal year 1995 funding under engineering development?

[The information follows:]

At the time the FY 1995 budget was submitted, FAA expected to be in full production in March 1994. Even though TSARC ultimately approved a modified production decision, all production systems being delivered meet full production criteria. We feel that the \$231.2 million is correctly categorized under Activity 2, Procurement and Modernization of ATC Facilities and Equipment. This includes \$24.0 million of prototype development software upgrades and planned product improvements.

TACAN ANTENNA OPERATIONAL TEST FINDINGS

Mr. CARR. I understand that the TACAN antenna did not perform well during last year's operational test. What were the specific findings of that test, and are you still planning to move forward with this program, given those problems?

[The information follows:]

This is a summary of the specific findings of the Integration and Operational Test and Evaluation where the antenna did not perform satisfactorily.

The antenna, as tested, was not recommended for deployment for the following reasons:

- Excessive course unlocks occurred on one of the test frequencies during flight checks.

- Lower than tolerance 135 Hz depth of modulation at mid to high band frequencies.

- Phase coherency between the 135 Hz and the 15 Hz modulation signals exceeded standards at the ground station monitor.

The report did state that the antenna mechanical operation was flawless during the testing. The contractor, Radiation Systems Inc. (RSi) was notified of the failure and the specific shortcomings. RSi has responded with a proposed design modification and schedule to resubmit a new first article antenna. The design as presented addresses all of the above problems.

The Contract schedule was rebaselined April 15, 1994, and we are proceeding with the program with the following check points:

- A technical risk assessment of the RSi Low Power TACAN antenna design is being performed by Massachusetts Institute of Technology, Lincoln Laboratory.

- FAA and DOD are evaluating engineering changes proposed by RSi to achieve optimum overall performance of the antenna.

- An antenna with the prototype design change will be tested in early May at the contractor's test range and at the FAA Technical Center, Atlantic City, NJ.

- With satisfactory progress and test results the contractor will proceed with delivery of a first article antenna to the FAA Technical Center in October 1994.

TACAN OPERATIONAL TEST REPORT—EXECUTIVE SUMMARY

Mr. CARR. For the record, please provide a copy of the executive summary of that operational test report.

[The information follows:]

A copy of the executive summary follows.

EXECUTIVE SUMMARY

Operational Test and Evaluation (OT&E) Integration and OT&E Operational Testing was conducted on the Low Power Tactical Air Navigation (TACAN) Antenna (LPTA) at the FAA Technical Center (FAATC), from July 19 through September 23, 1993, using LPTA Serial Number 005. Testing was categorized into the areas of integration and maintenance, operational flight testing, and additional testing. Flight testing utilized the FAA Technical Center (FAATC) Convair 580 aircraft with a Portable Sierra Flight Inspection Package and Flight Inspection Field Office (FIFO) Beechcraft with a Gold Flight Inspection Package. Results were generally unsatisfactory in operational flight areas, however, no deficiencies were found in the maintenance areas. Integration deficiencies were noted, but are not considered deployment critical.

Since the flight testing was generally unsatisfactory, it is concluded that operationally the LPTA is unacceptable for deployment.

RECOMMENDATIONS

Deployment is not recommended. The LPTA is perhaps operationally acceptable over certain elevation angles, but yields unacceptable performance at other elevation angles which would preclude its use for Instrument Flight Rules (IFR) approaches to airports.

The following deficiencies are considered major:

- a. Course unlocks occur with every operational parameter either good or at least appearing to be stable. See Appendix D for details.
- b. Lower than tolerance 135 Hz depth of modulation at mid to high band frequencies. See Appendix B for related test data.
- c. Phase Coherency exceeds standards and tolerances of FAA Order 6820.7a and FAA Standard 9840.1 at the ground station monitor. This phenomenon causes automatic reversion to DME only operation when the ground station is operated with approved tolerances and exists at an undetermined number of frequencies in the TACAN band. This version of the phase coherency problem may be a problem caused by monitor siting, however, as delivered the antenna does not operate with the existing equipment. Appendix C provides data on the discrepancies found. Appendix F provides information on phase coherency expectations.
Phase coherency as measured during Design Test and Evaluation indicated that the high-band frequencies fail the phase relationship criterion of Standard 9840.1. The two frequencies tested in the high band were 1150, 1213 and the measured values were -4.71 degrees and 32.8 degrees". Addressing the monitor siting problem will not correct this aspect of the phase coherency.
- d. The informal results of DQT and Production Acceptance Testing (PAT) indicate that production may not allow consistent alignment of the phase coherency error and this implies that each antenna could have its own set of unusable frequencies.
- e. The performance in the area of relationships of reference and variable bearing signals, specifically phase coherency difference between coarse and fine bearing signals, when measured across the band and only on the horizon, exceeds plus/minus 2.33 degrees by as much as

5.17 degrees. There is no alignment of the North reference burst which can meet FAA Standard 9840.1, Chapter 4, item 141 when the phase coherency exceeds plus/minus 2.33 degrees.

The following deficiencies are considered moderate:

- a. The loss of TACAN 135Hz modulation and course lock occurs at as little as 24 degrees above the horizon thereby representing a reduction of existing service.
- b. The placement of the FA-9996 monitor antenna may no longer assure that damage to the TACAN antenna can be detected. Modulation and phase information from the high rings may be undetectable at and below the horizon. Placement of the monitor antenna in the far-field of the LPTA is recommended.

The following deficiency is considered minor:

- a. Power factor is below the requirements of specification FAA-E-2828A.

PROCUREMENT OF WORKER'S COMPENSATION MANAGEMENT SYSTEM— IG REPORT

Mr. CARR. Last July, the IG issued a report questioning the need for FAA's planned procurement of a workers' compensation claims and case management system. What is the status and future plan for this procurement?

[The information follows:]

As a result of the OIG report on the proposed Worker's Compensation Management System, FAA has modified the Statement of Work to ensure close monitoring and evaluation of the contract results by the contracting officer's technical representative. The Claims and Case Management system will be conducted as a prototype for evaluation and comparison with our current regional/center OWCP case management systems. A procurement request has been processed and we expect a contract award during FY 1994.

OWCP CLAIMS AND CASE MANAGEMENT FUNDING PROFILE

Mr. CARR. Please provide a funding profile for this system by fiscal year.

[The information follows:]

Fiscal year 1993	\$85,000
Fiscal year 1994	110,000
Fiscal year 1995	100,000
Fiscal year 1996	100,000
Fiscal year 1997	100,000

WEATHER MESSAGE SWITCHING CENTER REPLACEMENT

Mr. CARR. Late last year, the FAA announced that it needed to secure, on an "urgent sole source" basis, a continuation of engineering support services for the weather message switching center replacement program. You were also requiring the incumbent contractor (Harris Corporation) to investigate software deficiencies in this program, and you expressed concerns over the adequacy of the hardware. Please provide a detailed discussion of your concerns and tell us what is being done to resolve them.

[The information follows:]

The FAA is processing a justification for other than full and open competition on the Weather Message Switching Center Replacement (WMSCR) to the prime contractor (Harris Corporation) for continuation of software/hardware support. After the FAA, not Harris, investigated the detailed user requirements provided by the current system, we determined that software/hardware support for the WMSCR system is required to fully integrate the system into the NAS.

The WMSCR was designed to interface with many NAS systems that have either undergone significant interface changes, have been canceled, or have been combined into new programs. Before commissioning, the WMSCR must also be backward compatible with all existing users of the current WMSCR system. The following are examples of some of the difficulties the WMSCR program has encountered and is in the process of resolving.

The current WMSC provides "specialized" products to current users and provides communications parameters not standard with current automated processing or telecommunication systems. WMSCR requires software changes to provide the same services and a hardware upgrade to accommodate the amount of processing required to product the "specialized" products for the current users.

The Consolidated NOTAM System Processor is a NAS program which has been canceled and combined into a new procurement yet to be implemented. Thus, the WMSCR requires software modifications to accept data provided by the current Consolidated NOTAM System.

WMSCR was designed to communicate and exchange whether data with the Flight Service Automation System. There are a number of manual Flight Service Stations congressionally mandated to remain open. Thus, WMSCR requires software

changes and additional processing to interface with the equipment still residing in the manual Flight Service Stations.

The National Weather Service is continually providing new data in different formats as part of its modernization program. WMSCR software will be modified to become easily adaptable to these changes, thus reducing future operational software support costs.

WMSCR—FUNDING PROFILE

Mr. CARR. Please provide a funding profile for this system by fiscal year.

[The information follows:]

The Weather Message Switching Center Replacement (WMSCR) is requesting no funding for fiscal year 1995. The prior year funding profile is stated below:

F&E Funding in millions

Fiscal year 1982	0.50
Fiscal year 1983	12.80
Fiscal year 1984	0.00
Fiscal year 1985	2.20
Fiscal year 1986	2.40
Fiscal year 1987	0.00
Fiscal year 1988	5.00
Fiscal year 1989	0.00
Fiscal year 1990	0.00
Fiscal year 1991	2.00
Fiscal year 1992	1.00
Fiscal year 1993	3.00
Fiscal year 1994	3.60
Total	32.50

DIRECTION FINDERS IN STORAGE

Mr. CARR. The FAA has about 100 direction finders in storage at the FAA Logistics Center in Oklahoma City. These systems were delivered between February 1991 and May 1992, but have not been deployed because they did not meet air traffic requirements. How is it that delivery was taken of equipment that did not meet requirements?

[The information follows:]

Approximately 100 Direction Finder antenna systems are in storage at the FAA Logistics Center. These systems were delivered there between January 1991 and May 1992. These antenna systems were accepted by the FAA after passing factory type tests, design qualification tests and production. Since the equipment passed all of the required factory testing, the FAA accepted the system.

On recent acquisitions, the FAA has imposed "fly before buy" as a standard contract requirement. In practice, it means that the contractor builds one system, and if it passes all of the required field testing, the FAA directs the contractor to continue production of the remaining systems. Under the terms of the Direction Finder contract there was no such provision.

Subsequent field testing revealed that the equipment contained seven latent defects and the FAA directed the contractor to correct them at no cost to the government. These deficiencies were corrected to the FAA's satisfaction in 1992.

However, \$10,220,000 in additional requirements were defined by the FAA that involved the human/machine interface and the development and production of on-site simulator trainers. The new human/machine interface requirements were incorporated into the contract, passed testing and were accepted by the FAA in mid-1993. Development of the direction finder systems was delayed until both the operational equipment and the simulator trainer could be deployed together. In February 1994, the simulator trainer passed Operational Test and Evaluation (OT&E) and was accepted by the FAA. These additional requirements were program funded.

The entire system including the simulator trainer is now scheduled to begin commissioning at Automated Flight Service Stations in July 1994.

DIRECTION FINDER SYSTEM—FIELD DELIVERY AND COMMISSIONING

Mr. CARR. What does FAA plan to do with this equipment, and when can we expect them to be delivered to field sites and commissioned?

[The information follows:]

The Direction Finder System meets all of the requirements imposed by the FAA. The FAA will initiate commissioning of this equipment at the Automated Flight Service Facilities in July 1994.

ASDE-3 SITE SELECTION

Mr. CARR. What specific sites have been selected to receive the additional ASDE-3 units, and what factors were used in making these selections?

[The information follows:]

The fiscal year (FY) 1993 conference report on the Department of Transportation (DOT) Appropriations bill added \$49.5 million for the Federal Aviation Administration (FAA) to procure an additional 11 ASDE-3 radar systems. The 11 sites were:

Charlotte, North Carolina; Raleigh/Durham, North Carolina; San Diego, California; Phoenix, Arizona; Albany, New York; FAA Technical Center; Cincinnati, Ohio; Orlando, Florida; Las Vegas, Nevada; Santa Ana, California; and Albuquerque, New Mexico.

The FAA's response to Congress was that the 11 additional airports identified above, did indeed qualify for the ASDE radar system, based on the draft B/C analysis only. However, in the total analysis of the ASDE-3 requirements, there were only six airports and the FAA Technical Center that qualified for the system. The total analysis consisted of an operational assessment that considers whether patterns, airport complexity, nighttime operations, history of ground incidents, etc.

The four airports deleted from the above list are:

Albuquerque, New Mexico; Albany, New York; Las Vegas, Nevada; and Phoenix, Arizona.

AAS—FINANCIAL STATEMENT

Mr. CARR. The FAA has been preparing financial statements for many years. What did any of these statements say about the potential financial vulnerabilities of the advanced automation system (AAS)? Why did the statements fail to reveal any of the problems now faced by AAS, or the significant cost overruns?

[The information follows:]

The financial statements produced by the FAA and published in the FY 1993 FAA Annual Report, and prior annual reports, are prepared in accordance with the requirements of the Chief Financial Officers Act of 1990. The financial statements disclose financial position and results of operations of the FAA in relation to currently available budgetary resources at the appropriation level. Financial vulnerability of a component program such as the Advanced Automation System (AAS) is not necessarily obvious in these statements because the larger Facilities and Equipment appropriations are well within funding limitations. The AAs "cost overrun" is a long term capital investment plan estimate, not a current year over-obligation of funds that would be immediately obvious on the financial statements. We have, however, intended to provide full disclosure of both current and potential problems in our annual report. In the FY 1993 report, AAS was mentioned as "... encountering troubling schedule delays and costs overruns ..." in the Message From the Administrator, and that "... the program continued to incur additional costs beyond those reported earlier." on pages I-2 and I-3 of the Overview.

Additionally financial statements are prepared for the AAS program that reflect the Capital Investment Program profile, and the total funding that the program of office believes will be required to complete the program. Financial statements prepared for the AAS program were never intended to reflect potential financial vulnerabilities but were to reflect the approved funding baseline. Cost and schedule vulnerabilities were identified separately through contract analysis reports. These

reports have always been shared with FAA, DOT, and Congressional oversight organizations.

Last year during appropriations hearings, the FAA testified that there was a potential for cost growth of approximately \$200 million. This was based on the following optimistic assumptions (dollars in millions).

Estimate to complete the contract (above baseline)	\$707.0
IBM Fee Loss	(93.0)
Reserved for cost growth	(222.0)
Budget for over FPI target cost	(157.0)

Estimated growth to cost baseline	235.0
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Since last year, several assumptions have changed. The estimate to complete has increased, it is not prudent to use program reserves with so much of the program still ahead of us, and costs will still be incurred over FPI targets. In addition, there are new program requirements that were not previously anticipated.

The following are assumptions that we used in our estimate of a \$1.2 billion cost growth:

Estimate to complete the contract (above baseline) (including fee loss)	\$741.0
Additional incentive fee	39.0
ISSS minimum requirements	100.0
Continuous operations	350.0
TAAS stand-alone capabilities	100.0
108 optional TCCC's	(100.0)

Estimated growth to cost baseline	1,230.0
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An analysis of the cost and schedule risks if nothing in the program changes, revealed that the cost risk might be even greater than this number. The AAS recovery team chartered by the FAA Administrator is analyzing changes to the program to reduce these risks and reflect our revalidated requirements. These changes and associated estimates will be complete for near term requirements by the end of May. Estimates for requirements from 2,000 are expected by September. The FAA's next financial statement will reflect these changes.

OCEANIC SYSTEM DEVELOPMENT AND SUPPORT

Mr. CARR. After 10 years of work and investment of about \$56,000,000, FAA recently announced its intention to stop in-house development of the oceanic display and planning system (ODAPS). Instead, the agency will begin looking for a vendor to take charge of a new program called oceanic systems development and support. What is your overall objective and schedule for the new program? [The information follows:]

The Oceanic Automation Program (OAP) was initially established to support the existing Oceanic Display and Planning System (ODAPS) currently operational in Oakland ARTCC and in initial operating capability mode in the New York ARTCC and to upgrade its controller input/output devices. However, over the course of the program, industry demands to provide fuel efficient routes and increased airspace capacity has required the replacement of ODAPS. The initial replacement system will be upgraded in small increments to provide functionality similar to the domestic systems. In its end state, the Advanced Oceanic Automation System (AOAS) provides the (automation platform that will: 1) improve communication capabilities by exploiting the use of datalink; (2) increase surveillance accuracy through the use of the global positioning system (GSP); and (3) reduce controller workload through automated coordination and conflict detection tools. In addition, the AOAS will provide a seamless transition to and from oceanic and domestic airspaces through an interface to the Advanced Automation System.

The OSDS contract will provide for the incremental development and support of the Advanced Oceanic Automation System. The OSDS contract is intended to be an omnibus contract which will address all of the agency's needs for the oceanic domain. Allowing use of all appropriations, it will provide: maintenance, staffing, logistics, training, and other resources required to ensure continuous daily operation of the existing operational oceanic automation hardware and software. The contract will also include provisions for system hardware and software enhancements to satisfy planned air traffic and system capacity and capability requirements.

The schedule for OSDS follows:

The release of a draft solicitation occurred the second quarter of fiscal year (FY) 1994 with final release planned for the third quarter of FY 1994 and contract award before the end of FY 1995.

SUSPECTED UNAPPROVED PARTS (SUP)

Mr. CARR. Have you referred all of the bogus parts reports you received to the IG for criminal investigation?

[The information follows:]

We receive all suspected unapproved parts (SUP) reports from the FAA's System Surveillance and Analysis Division, AIR-300, which the responsibility to keep a data base on all SUP complaints received through various sources connected to the aviation industry. All cases determined to involve actual SUP are forwarded to the Office of Civil Aviation Security (CAS) after being initially assigned to either a Flight Standards District Office (FSDO) or a Manufacturing Inspections District Office (MIDO) for preliminary inspection and regulatory action. Complaints about improper paperwork related to approved parts would not be forwarded. It may seem from scanning the AIR-300's database that not all SUP reports are being forwarded because many entries are determined not to have involved actual unapproved parts. However, all reports of unapproved parts received by CAS, are forwarded to the OIG in Washington, D.C. for review.

The DOT/OIG in Washington, D.C. has been forwarded every report determined to be a SUP and periodically receives a copy of the database printout reflecting all complaints. As described above, the database includes many entries determined not to be actual SUP's by the FAA's Flight Standards National Field Office.

CRIMINAL INVESTIGATIONS

Mr. CARR. Who at the FAA makes the determination that no criminal violation exists, and what criminal or prosecution training and experience does that individual have? Is this the process prescribed by department regulations?

[The information follows:]

Criminal Investigators employed in the Office of Civil Aviation Security (CAS) Operations work directly under FAA Orders: FAA Investigations Program, 1600.38C; CAS Investigations Handbook, 1600.20B; and Compliance and Enforcement Program, 2150.3. In accordance with these orders, the investigators are directed to take each case to the Office of the Chief Counsel for review and determination of the criminal nature of the case. Agents are required to establish early contact with counsel in order to coordinate with the appropriate U.S. Attorney's office for all investigative activities pertaining to the case.

It is the FAA attorneys who have the legal expertise to make this criminal determination. In addition, all FAA criminal investigators have been law enforcement officers in their prior careers or have graduated from the Federal Law Enforcement Training Center (FLETC) in Brunswick, GA, with training in criminal investigations.

Potential criminal cases, other than those involving FAA programs, are discussed with or referred to the Department of Transportation, Office of Inspector General for review and presentation (often joint) to the Assistant U.S. Attorney for consideration of criminal prosecution. Although Suspected Unapproved Parts is an FAA program, investigations are always coordinated with the Office of Inspector General, at its request.

LONG RANGE RADAR LEAPFROG PROJECT

Mr. CARR. According to the GAO's annual status report on the modernization program, the FAA is currently reviewing the funding for the long range radar leapfrog project. Is this accurate, and if so, what are the objectives of that review?

[The information follows:]

The FAA has conducted a review of its requirements for continued use of Long Range Radars (LRR). The objective of this review was to determine if there was a continuing requirement for the LRR's as some of these radars are approaching 35 years old and must be replaced if continued service is necessary. The FAA has con-

cluded that as soon as weather data is available to the controller from the Next Generation Weather Radars (NEXRAD), the LRR's can be deactivated. The beacon type, or secondary radars, will be continued indefinitely. The new LRR (ARSR-4) developed jointly by the DOD and the FAA will continue and was not part of the FAA study.

The DOD will be revalidating their need to continue operating some of the LRR's that are used jointly by FAA and DOD. If DOD determines that a need exists to continue operating the shared radars, the FAA will determine if it is more cost effective to replace (leapfrog) these radars with the surplus but newer type ARSR-3 radars made available by installing the new ARSR-4 radars. The decision to leapfrog the ARSR-3's will be based in part on how long the DOD needs to continue receiving data from these joint sites. In the event that DOD does require continuing data from these sites, new FAA/DOD agreements will be required.

Mr. CARR. Are any funds included in the fiscal year 1995 request for that project?

[The information follows:]

The fiscal year 1995 request includes \$2.0M for removal and relocation of one ARSR-3 radar.

MODE S CONTRACTOR—ANTICIPATED CLAIMS

Mr. CARR. The GAO status report refers to "anticipated claims" by the Mode S contractor in fiscal year 1996. Do you have any information on what the GAO is referring to?

[The information follows:]

The GAO is referring to additional costs for changes to the installation of Mode S sensors at select sites, under the fixed price contract, and to the request for equitable adjustment by Wilcox, Inc., for additional testing of the calibration performance monitoring equipment (CPME) and development of the CPME test set.

ROUTING AND CIRCUIT RESTORAL (RCR) PROJECT

Mr. CARR. Your justifications indicate that \$6,000,000 has been appropriated to date for the routing and circuit restoral (RCR) project, and an additional \$3,000,000 is requested for fiscal year 1995. The justifications indicate a requirement for 24 sites, which is being procured through the Air Force NET contract. There is apparently more than enough prior year funding to accomplish the Air Force contract. What, therefore, is the planned use of the \$3,000,000 requested for fiscal year 1995 for RCR?

[The information follows:]

The \$6,000,000 appropriated to date has procured the RCR pilot network (6 sites) and hardware for an additional 12 sites, as well as testing, training development, and project/regional support. The \$3,000,000 in fiscal year 1995 is required to procure hardware and regional/project support for the remaining 6 sites. Without these remaining sites in fiscal year 1995, the RCR network cannot be completed.

RESEARCH, ENGINEERING AND DEVELOPMENT (RE&D), CENTER FOR ADVANCED AVIATION SYSTEM DEVELOPMENT (CAASD)

Mr. CARR. Please provide a breakdown of all funding in the fiscal year 1995 budget request for the Center for Advanced Aviation Systems Development (CAASD) at Mitre Corporation.

[The information follows:]

The following lists the projected Fiscal Year 1995 funding for the Center for Advanced Aviation Systems Development at MITRE.

<u>Title</u>	<u>Amount</u>
<u>R,E&D</u>	
Aeronautical Data Link Communications	\$1,550,000
Aviation System Capacity Planning	978,000
Multiple Runway Procedures Development	400,000
System Performance and Investment Analysis	380,000
Application of Satellite Comm. Capability for Civil Aviation	600,000
Aeronautical Data Link Application	1,700,000
Advanced Traffic Management System (ATMS)	1,800,000
National Simulation Capability (NSC)	1,200,000
Oceanic Automation System (OAS)	1,450,000
Terminal Area Surveillance System (TASS)	210,000
Terminal ATC Automation (TATCA)	450,000
Traffic Alert & Collision Avoidance System (TCAS)	1,000,000
Vertical Flight Program	125,000
NAS Telecommunications for 21st Century	<u>600,000</u>
Total (R,E&D)	\$12,443,000

<u>Title</u>	<u>FY 1994 F&E*</u>	<u>Amount</u>
National Simulation Laboratory		900,000
ICAO-US Future Air/Navigation Systems		333,311
Terminal Surveillance Radar Support		349,431
Communications Architecture and Systems Design		3,598,143
Surveillance Processing and Concept Analysis		1,274,721
Facility Engineering		4,755,935
Mission Needs Analysis		2,600,000
Systems Engineering		9,035,633
Navigation/Landing		821,929
Software System Engineering Center Concept		191,940
Advanced Automation System Development		2,895,375
Automated En Route ATC (AERA 2)		12,543,825
ATC Automation Division Engineering Support		1,218,039
Traffic Management System (TMS) Applications		745,837
Advanced Radar Siting Concepts		150,000
Safety Studies and Analysis		800,000
Airport Capacity Research		1,127,956
Aeronautical Data Link		2,617,777
NAS Performance Analysis Capability		1,800,420
Operational Transition Analysis		1,300,289
Area Control Facility Operations/		
Implementation Studies		1,100,000
NAS Requirements		191,360
Terminal Air Traffic Control		2,452,616
Spectrum Engineering		326,053
Satellite Communication and Navigation/		
Global Positioning System		2,626,183
Traffic Flow Management		2,642,800
Oceanic Automation Support		77,634
National Airspace Data Interchange Network		868,215
Airport Movement Area Safety System		364,985
Automatic Dependent Surveillance (ADS)		<u>1,146,536</u>
Total (F&E)		60,856,943

FY 1994 OPS *

<u>Title</u>	<u>Amount</u>
Telecommunications, Management and Operations	3,125,463
Air Traffic Human Performance Improvement Support	682,000
National Flight Data Center Aeronautical Information System	441,839
Safety Studies and Analysis	537,000
Airway Facilities International Programs	<u>171,874</u>
Total (OPS)	4,958,176

* Based on FY 1994 negotiated contract estimates; FY 95 projections are comparable

CAASD COSTS

Mr. CARR. As we mentioned in last year's hearing (p. 551), the average cost of a staffyear, fully loaded, at CAASD was approximately \$185,000 in fiscal year 1991. What is the comparable average cost of a staffyear, fully loaded, at Mitre's CAASD for fiscal year 1995 and how does that compare to what the FAA pays its other systems engineering and integration contractors such as General Electric, Vitro, Martin Marietta, and TRW?

[The information follows:]

The "apparent" cost for the MITRE technical staff for fiscal year 1994 is \$189.2K, which includes unique costs for all other technical personnel, administrative and support staff, and other direct costs. The fully loaded costs for MITRE technical staff for fiscal year 1995 is \$198.6K.

A more comparable average cost for MITRE technical staff (reasonably loaded) versus other contractors for fiscal year 1994 is \$147.7K (\$155.1K for fiscal year 1995). Comparable cost averages for other systems engineering and integration contractors are as follows:

TRW—Advanced Automation Program Technical Assistance Contract—\$131K.
 Martin Marietta—System Engineering & Integration Contract—\$140K.
 General Electric/Martin Marietta—NAS Integration Support Contract—\$123K.
 Vitro—Surveillance Technical Assistance Contract—\$94K.

CAASD—COMPREHENSIVE REVIEW

Mr. CARR. The FAA signed a new contract in January 1993 to continue the Federally Funded Research and Development Center (FFRDC) relationship with Mitre. Part 35.017 of the Federal Acquisition Regulations state that the sponsor of an FFRDC, prior to extending the contract or agreement, "shall conduct a comprehensive review of the use and need for the FFRDC." This review must include an examination of the sponsor's special technical needs, and consideration of alternative sources to meet those needs. Did the FAA perform such a review, and if so, what is the date of the final report and what were its findings?

[The information follows:]

The Memorandum of Agreement (MOA, or sponsoring agreement) for the FFRDC with MITRE expires in September 1995. FAA signed a new contract with MITRE in December 1992 in accordance with the scope of the existing MOA.

FAA completed the comprehensive review for continued use of the FFRDC in March 1994. Based on the requirements contained in the governing directives from OFPP and the FAR, an examination of the sponsor's special technical needs and mission requirements and consideration of alternative sources to meet the FAA's needs were analyzed.

The draft report concludes that the reasons for continuation of the Center for Advanced Aviation Systems Development (CAASD) are still valid in that: (1) there is a continuing need; (2) the costs are reasonable; and (3) the internal control procedures implemented are adequate.

CAASD—SCOPE OF WORK

Mr. CARR. In last year's hearing, Acting Administrator Del Balzo said: "We have carved out and we are very particular in the kind of work that we ask Mitre to do. We don't give them any work that can be done by anyone else. It is real systems level activities that is being done by Mitre" (p. 551).

However, some of the activities in the Mitre contract appear to represent general program management and monitoring activities rather than research and development activities. Some examples from the fiscal year 1993 work plan are as follows: (1) observe field

testing of the AMASS system and assist the program office in identifying corrective actions necessary to develop the production specification; (2) develop a global plan for implementing satellite navigation systems; (3) develop a decision tracking system for FAA management; (4) assist program managers in preparing mission need statements; (5) review NAS program initiatives and financial baseline change notices and provide drafts of needed documents to add programs to the capital investment plan; (6) review status of VSCS improvements and report regularly to the VSCS program office; (7) develop the test requirements for the AAS; and (8) review and comment on the Aviation System Capacity Plan.

In fact, the taskings to CAASD are so broad they cover virtually every conceivable aspect of the FAA's operations. Does the FAA have any guidelines which help determine when the special talent of its FFRDC should be used?

[The information follows:]

The Memorandum of Agreement (MOA) executed between the FAA and the MITRE Corporation defines the purpose and scope of operations for the CAASD. Additional guidelines for the assignment of work to the CAASD are contained in the statement of work in the contract with MITRE and the CAASD Program Implementation Plan.

The scope of CAASD involvement includes (among other aspects) validation of operational requirements, analysis of operations, conduct of engineering studies and ATC performance analyses during the development and acquisition phases of NAS hardware and software subsystems, the development of operational test and interface requirements, and analysis and reporting on the effectiveness, efficiency and safety of the operational ATC system.

MITRE's critical expertise in ATC systems lies in the development of system requirements, and their associated interface with enhancements to existing systems. It is necessary for MITRE to understand and assist, where necessary, in the development of FAA's ATC programs. The examples provided are directly associated with the identification or development with operational requirements, test specifications, and their associated dependencies and interdependencies.

Mr. CARR. Federal regulations require that the basic purpose and mission of an FFRDC be stated clearly enough to enable differentiation between work which should be performed by the FFRDC and that which should be performed by non-FFRDCs. Where is this stipulated by the FAA?

[The information follows:]

The Memorandum of Agreement (MOA) between the FAA and the MITRE Corporation specifies the mission, purpose, and scope of operations of the Center for Advanced Aviation System Development (CAASD). The mission is to conduct a continuing program of NAS research and development, and engineering to meet FAA's long- and short-term requirements. Its purpose is to assist FAA in addressing evolutionary changes necessary to modernize the NAS.

As previously discussed, the scope of CAASD involvement includes validation of operational requirements, analysis of operations, conduct of engineering studies and ATC performance analyses during the development and acquisition phases of NAS hardware and software subsystems, the development of operational test and interface requirements, and analysis and reporting on the effectiveness, efficiency and safety of the operational ATC system.

DOD-SPONSORED FFRDCS—IG REPORT

Mr. CARR. In November 1993, the Department of Defense Inspector General released a report on the sole-source justifications for DOD-sponsored FFRDCs. In this report, they noted that contracts for many FFRDCs were being extended without meeting the requirements of the acquisition regulations governing the special re-

relationship between the government and the FFRDC; in essence, without justifying and documenting their continued need. This report noted that an internal Air Force study in 1991 concluded that the average technical staff year cost at Mitre Corporation's Command, Control and Communications FFRDC was about 12 percent higher than could be obtained from non-FFRDC sources. Has the FAA reviewed this report, and if so, can you tell the committee that the FAA has performed all of the analyses and justifications which DOD sponsors so often failed to perform?

[The information follows:]

The FAA program office has not reviewed the Department of Defense report on DOD-sponsored FFRDCs, but is requesting copies of it to assess for lessons learned and other useful information.

As required by Office of Federal Procurement Policy (OFPP) Letter 84-1 and Section 35.017 of the Federal Acquisition Regulation (FAR), we have completed the comprehensive review, including all analyses and justifications, for FAA's Federally Funded Research and Development Center (FFRDC) operated by The MITRE Corporation. The Delegation of Procurement Authority (DPA) issued by the General Services Administration (GSA) for the current Center for Advanced Aviation Systems Development contract was contingent upon completion of the comprehensive review.

CAASD—COST COMPARISONS

Mr. CARR. As it relates to Mitre specifically, has the FAA conducted any cost comparisons similar to those of the Air Force?

[The information follows:]

FAA is in the process of requesting the Air Force report which will be reviewed for similar cost comparisons. In completing the comprehensive review of the Center for Advanced Aviation Systems Development required to renew the Memorandum of Agreement, rates were determined to be reasonable based on findings of the Defense Contract Audit Agency.

EDS TECHNOLOGIES

Mr. CARR. Since passage of the Aviation Security Improvement Act of 1990, the Congress has provided the FAA with almost \$130,000,000 for security research. FAA's security research funding has grown from \$9.9 million in fiscal year 1989 (prior to the act) to \$35.9 million in fiscal year 1994, a 262 percent increase.

The National Academy of Sciences, FAA, airline industry representatives, and others agree that no single explosive detection device can currently meet all of FAA's requirements for checked baggage. Therefore, FAA's strategy is to develop a comprehensive mix of technologies that can be used in combination at airports. When will new explosive detection devices be approved for airline use?

[The information follows:]

We anticipate that we will receive the first application for certification testing of a device at the FAA Technical Center in June 1994. While this device may meet the FAA's detection and false alarm requirements, at least two of these relatively expensive devices would have to be operated in parallel to meet the throughput requirements of the criteria. Indeed, the scientific, engineering, and public policy challenges of fielding practical explosives detection systems are formidable, and FAA does not anticipate certified EDS in widespread airline use for two to five years.

This is for two reasons. First, the FAA's EDS certification criteria, published in response to the Aviation Security Improvement Act and thoroughly coordinated with the best experts in the scientific and intelligence communities, are truly national standards which appropriately implement the intent of Congress. Unfortunately, because of the inherent limitations of current technology, no single device can easily meet the criteria. Second, combining—and ultimately fully integrating—two or more

devices increases purchase, installation and operating costs for both airlines and airports.

The FAA's approach to deployment is to certify all devices brought to the FAA Technical Center, fund additional integration of the most viable devices, simulate the operation of EDS at an airport and, if necessary, conduct an airport demonstration to validate the simulation. The goal is to determine the best way of deploying EDS and to do so with full awareness of industry costs.

Mr. CARR. What technologies show the most promise?

[The information follows:]

In the short-term, computerized tomography and dual energy X-ray devices show the most promise in eventually meeting the FAA's EDS Certification criteria. In the long-term, nuclear quadrupole resonance and pulsed fast neutron technologies may be promising, although it is still too early to tell with any degree of certainty.

Mr. CARR. Can security technologies used by other countries meet FAA's requirements?

[The information follows:]

The FAA has worked closely with other countries to agree on EDS performance standards and to develop and test equipment to meet these performance requirements. For example, the European Civil Aviation Community (ECAC) Security Technical Subgroup just recently adopted the FAA's EDS Certification Criteria as a goal for its member-states to meet in their efforts to achieve 100% screening of all international checked baggage.

The technologies now being tested or demonstrated by the UK, Germany, Switzerland, the Netherlands and other countries have not yet been adopted for full operational use. Nearly all of those technologies are American-funded or assisted by FAA—and their performance, along with that of several devices produced by European or Israeli manufacturers, is known. Based upon our test results, including recent joint tests with UK authorities of advanced technologies deployed at UK airports, none of these systems can yet meet the FAA's EDS Certification Criteria. The FAA is working with certain governments to improve performance of those systems.

AIRCRAFT HARDENING

Mr. CARR. What aircraft hardening techniques show the most promise?

[The information follows:]

The near-term solution for wide body aircraft is hardening the baggage container. The FAA Technical Center is developing a hardened baggage container capable of withstanding or mitigating the blast effects from an explosive detonation. The current prototype containers have successfully contained blast effects from explosive charge weights greater than those identified in the Explosive Detection Systems Certification Criteria. Research is continuing this year on container weight reduction, manufacturing and life-cycle cost reduction, and maintenance procedures. The airline industry is providing the FAA with data on the current use of containers to ensure a full understanding of the cost of any future implementation. Research on aircraft structure hardening is currently being conducted through a grant to the National Institute for Aerospace Studies and Services (with representation from Boeing, McDonnell Douglas, and Lockheed) which is investigating structural hardening techniques and developing new design criteria for both aircraft now in use and future aircraft.

BLAST MANAGEMENT TECHNOLOGIES

Mr. CARR. What is the FAA's opinion of so-called blast "management" technologies and what is the status of testing such technologies?

[The information follows:]

The FAA believes that blast management technologies and techniques for hardening the aircraft itself are worthy of research and must be pursued. They include utilization of blast curtains and blankets, shielding critical control systems, and designing future aircraft structures to withstand and mitigate an internal explosion. Working with Department of Defense, FAA has collected blast damage modeling

data and conducted blast tests on aircraft to validate the data. This year, a reusable test asset (a so-called "iron bird" on which actual blast tests can be conducted repeatedly) will be acquired to validate vulnerability/hardening techniques. During FY 1995, a scientifically based assessment of the minimum amount of explosives that must be detected by any technology will be completed. Finally, close coordination with the aircraft manufacturers will be maintained, through the National Institute for Aerospace Studies Services, as well as with friendly foreign governments.

TRACE TECHNOLOGY STANDARDS

Mr. CARR. When does FAA expect to have standards for "trace" technologies?

[The information follows:]

Trace technologies can theoretically be applied to the screening of: (1) electronic items (such as computers), (2) carry-on baggage, (3) checked baggage, and (4) passengers. The target for developing standards depends on the application. In addition, FAA has more confidence in some applications than in others. For screening electronic items, commercial systems have been purchased, are now being evaluated, and preliminary standards are expected by December 1994. Regarding carry-on baggage, FAA believes most procedures developed for electrical items will carry over, although screening carry-on baggage is more complicated because of the variety of surfaces involved, and a preliminary standard will be ready by June 1995. The FAA is still determining the suitability of trace technologies as a primary screening device for checked baggage, since complications increase with the size of the bag, and now more interested trace technology as a way to help resolve bags designated as suspect by the primary screening system. Trace also appears suitable for screening passengers. There are no commercial passenger portal devices yet and all efforts are still in the laboratory stage. FAA can, however, carry out full scale evaluations of portals at the FAA Technical Center and it is hopeful that a unit could be available for an airport test by June 1995. FAA will need to develop standard vapor solutions and vapor generators to create certification standards and testing protocols, the target for which is June 1995.

Mr. CARR. Why does FAA believe it can be successful in developing such standards when the National Academy of Sciences was unable to do so?

[The information follows:]

The National Academy did indeed state that it is very difficult to develop standards for vapor detection equipment, and, recommended that a particle (rather than a vapor) standard (for plastic explosives) be developed, and said it would review a standard developed by FAA. While the task is difficult, there has been progress since the Academy's April 1993 report. Laboratory work on contamination assessment and standards, and standard protocols for portal evaluation have progressed; also, explosive sample patches as well as two vapor generators have been developed to assess portal performance. We believe that the Academy would be somewhat more optimistic if they reviewed the situation today. More important, the Academy's report was focused on the screening of checked baggage, and not on the screening of electronic items, carry-on bags, or passengers, upon which the FAA is now focusing.

TRACE TECHNOLOGY DEVELOPMENT

Mr. CARR. Why is FAA proceeding with trace technology when standards and test protocols have yet to be developed?

[The information follows:]

There are several reasons why FAA is proceeding with trace technology. First, FAA believes that meaningful and usable standards and protocols can be set for at least three applications and has set target dates to do that. Second, trace detection seems particularly suitable for the screening of electronic items and carry-on baggage. Indeed, trace equipment has been deployed for several years at European airports in this application. Third, trace technology is the leading candidate for the screening of persons for explosives. Later, it could be combined with a technologies that could detect metallic as well as non-metallic weapons to create an advanced passenger screening portal.

ATC CORPORATION AND RESEARCH

Mr. CARR. If the air traffic control functions of FAA were transferred to a Federal corporation, how would such a transfer impact the RE&D program? For example, would air traffic control research be done by the corporation?

[The information follows:]

Research in support of the corporation's mission and activities, such as the control of air traffic, would be handled by the corporation.

NON-CORPORATION RESEARCH

Mr. CARR. How would FAA allocate RE&D funds not directly related to air traffic control, such as fire safety and aging aircraft research?

[The information follows:]

We fully expect that non-ATC related R,E&D activities, such as fire safety, aging aircraft research, airport pavement analysis, etc., would be explained and justified in an FAA budget presentation, with appropriate Congressional review and associated appropriation action. FAA would continue to be responsible for developing requirements for those segments of today's R,E&D program.

FAA'S CORPORATE TECHNICAL CENTER

Mr. CARR. FAA's Technical Center in Atlantic City, New Jersey, plays an important part in the agency's research efforts. How would the center be affected under a corporate structure?

[The information follows:]

We envision that the FAA Technical Center would remain as a consolidated entity conducting R,E&D work and other support activities in response to requirements from both the new Government-owned corporation and the balance of the FAA. As you know, the Center operates reasonably independently now, and responds to a variety of requirements from several of the major program offices in FAA today. While reporting and program management relationships would likely be modified somewhat in a corporate environment, we do not expect it would present any insurmountable management, structural, or financial problems for Technical Center operations.

SYNTHETIC VISION RESEARCH

Mr. CARR. In fiscal year 1993, the FAA opposed the Congress's desire to continue funding the synthetic vision research and development program, and these funds were dropped in conference with the Senate. I noticed that the Advanced Research Projects Agency recently announced a contract to develop "enhanced vision autonomous landing guidance" systems for aircraft. How are the objectives of this effort different from the previous DOD-FAA synthetic vision program?

[The information follows:]

The objectives of the previous DOD-FAA synthetic vision program were to evaluate the feasibility of millimeter-wave radar and forward-looking infrared for landing in low visibility conditions. FAA concluded this program in 1993 after demonstrating the feasibility of synthetic vision and completing the proof-of-concept. FAA has produced a final report documenting its Synthetic Vision System Demonstration Program which will be made available to the aviation community in May 1994. The work continuing under ARPA carries this research further to the point where industry can present a system for commercial and military applications. For FAA, industry goals are to develop an enhanced vision landing system for certification in the cockpit.

RADIO COMMUNICATIONS LINK (RCL)

Mr. CARR. The FAA has expended a total of \$278 million from fiscal year 1982 through fiscal year 1993 for a microwave network called the radio communications link (RCL) and associated systems. The purpose given for building this network was to save on yearly leased communications expenses (estimated to be approximately \$50 million per year) and increase interfacility communications reliability. What is the FAA's current status of RCL utilization and attendant leased communications savings?

[The information follows:]

When the RCL program was initiated, divestiture had just occurred, an leased telecommunications cost were expected to rise substantially. Technological advances, particularly optical fiber, have resulted in decreased leased costs. Therefore, the potential savings from RCL will be reduced. The network was only completed within the past year, and transition of services is underway, with approximately 1000 circuits implemented.

LOW DENSITY RADIO COMMUNICATIONS LINK (LDRCL)

Mr. CARR. I understand the FAA has established a low density radio communications link (LDRCL) requirements contract to obtain: Replacement of antiquated radar microwave link equipment; new equipment for replacement of other unreliable equipment; and "last mile" interconnects from FAA facilities to the RCL network. LDRCL systems are required to fully utilize the RCL network. What is the full FAA funding capability for this program in fiscal year 1995?

[The information follows:]

In consideration of overall funding priorities in the agency, the full funding capability of this program in fiscal year 1995 is \$5 million.

Mr. CARR. What amount did the FAA and DOT request to OMB for funding for this program?

[The information follows:]

The fiscal year 1995 request to OMB for the LDRCL program was \$5 million.

Mr. CARR. Why has the budget request for the program declined from the fiscal year 1994 level to the fiscal year 1995 requested level?

[The information follows:]

To satisfy the FAA's telecommunications needs there are two options: (1) FAA owned, maintained, and controlled systems (LDRCL), or (2) leased services. The FAA has increasingly decided to meet telecommunications needs with leased services in place of investment programs such as LDRCL. Consequently, while LDRCL decreases, dollars allocated for leased services have increased.

Mr. CARR. The FAA originally envisioned 680 LDRCL systems to fully utilize the RCL network, replace old equipment, and establish new communications paths. Is this system count still accurate? How many systems are now required?

[The information follows:]

The FAA has divided the LDRCL requirement into two phases. Phase I replaces old, obsolete Radar Microwave Link (RML) equipment, and Phase II satisfies new microwave path needs. Phase I (38 systems which equals 107 sites) will be completed with F&E funds. Phase II (in excess of 400 systems, approximately 624 sites) will be accomplished with F&E and Operations funds, as funding is identified and made available.

Mr. CARR. Does the fiscal year 1995 decline in FAA requested funding for the LDRCL signify a declining interest or commitment in the FAA microwave network in which in excess of \$278 million has been invested to date?

[The information follows:]

LDRCL interest and commitment has not declined. However, comparison of leased versus LDRCL costs will be done on a case by case basis to assure the lowest cost to the taxpayer. Current budget constraints have slowed LDRCL implementation.

NATIONAL COMMUNICATIONS SYSTEM (NCS)

Mr. CARR. The FAA's RCL and LDRCL nationwide microwave communications network is part of the government's national communications system (NCS). Is this available for use by other government agencies in times of national disaster or emergencies?

[The information follows:]

The RCL could be made available to other government agencies in times of national disaster emergencies. NCS has successfully tested the technical feasibility of using RCL circuits in emergency preparedness situations. However, the RCL terminates principally at FAA facilities, so NCS would have to pre-position commercial circuits working in conjunction with the RCL in order to provide emergency end-to-end connectivity to other government agencies.

Mr. CARR. Has additional funding been solicited from other NCS users for shared network availability?

[The information follows:]

The following non-FAA organizations make use of the RCL:

Organization:	<i>Number of Circuits</i>
U.S. Geological Survey	06
Immigration & Naturalization Service	12
National Weather Service	05
U.S. Airforce	60
Base Operation (for all Military Pilots)	17
Naval Air Station	01
Coast Guard	13

114

The FAA does not charge these users for two reasons. The level of use is small and makes use of excess capacity on the RCL. RCL nonrecurring support costs are driven by FAA requirements and are essentially independent of the small number of circuits used by other NCS users.

FAA MICROWAVE SYSTEMS

Mr. CARR. What plans and assurance can the FAA provide that investments in FAA microwave systems to date will be utilized to obtain the benefits outlined in the fiscal year 1982 through fiscal year 1995 budget requests?

[The information follows:]

FAA plans call for the use of RCL whenever it satisfies a user requirement and is the most cost-effective solution. For several reasons (such as changed leased communications costs, the rapid development of digital telecommunications technologies, and the use of RCL as a tool for providing required diversity), the RCL benefits outlined in budget requests have changed from year to year since program inception. The FAA is currently, and will continue to assess its telecommunications requirements to assure they are met in the most cost-effective manner.

MID-AMERICAN RESOURCE CONSORTIUM (MARC)—MINNESOTA AIR
TRAFFIC CONTROL TRAINING CENTER

Mr. SABO. A February 28, 1994, letter was sent to the Director of the Minnesota Air Traffic Control Training Center which said the FAA intends to hire the center's September 1993 class within 90 days (the end of May). Is this time schedule still viable? When does the agency intend to hire and place these graduates?

[The information follows:]

All 27 graduates of the September 1993 class have been hired by the FAA. Ten graduates reported to Oakland Air Route Traffic Control Center (ARTCC) on April 11, 1994. The balance of graduates were placed at Los Angeles ARTCC (10), Fort Worth ARTCC (6), and Memphis ARTCC (1), all during the month of April.

Mr. SABO. What are the current and future demands for air traffic controllers? What are the plans for the academy? What are the FAA's plans for the MARC program in correspondence with the need for air traffic controllers?

[The information follows:]

The controller work force (CWF) has moved from a period of rapid growth to one of maintaining a stable work force. We anticipate that the FAA will only need to hire to replace attrition for several years. Attrition in the CWF is estimated at 250 per year. Most of this attrition will be addressed by the reassignment of Level I controllers as these towers are contracted out from 1994 to 1997. The FAA intends to keep safety critical staff at levels commensurate with staffing standards and operational requirements.

The FAA Academy provides proficiency and other operational training to the air traffic workforce in addition to the initial training given to new hires. Only about one quarter of the air traffic enrollments for FY 1995 are for initial qualification courses. Overall, air traffic controller training, both initial and proficiency, comprises less than 10% of student enrollments at the Academy, the Academy program for FY 1995 supports nearly 300,000 student days of technical training for other FAA safety workforces.

The MARC program, along with the other schools participating in the college training initiative, will remain as sources to the FAA for the limited hiring we anticipate over the next 4 years.

MARC CERTIFICATION

Mr. SABO. The February 28th letter to MARC suggested that the school explore training international air traffic controllers. In order to compete for international students, MARC needs official documentation stipulating that it is a provider of an FAA-certified air traffic control specialist training program. (Currently only the FAA academy provides students with that type of certification. Do you intend to provide MARC with the FAA certification? If yes, when do you expect this will take place? If not, please give a detailed answer.

[The information follows:]

The FAA is exploring this issue and will determine if it is feasible under current law.

NATIONAL WEATHER GRAPHICS PROGRAM: MODEL 1 FULL CAPACITY
(M1FC)

Mr. SABO. The FAA maintains that the Model 1 Full Capacity (M1FC) system is near the end of its life-cycle and will not be supportable beyond December 1995. When did the FAA become aware of the supportability concern? At any time did the FAA solicit a solution from private industry?

[The information follows:]

In late 1991 the FAA Logistics Center initially raised concerns about the supportability of the M1FC hardware at the Automated Flight Service Stations (AFSS's) beyond December 1995. The M1FC system is composed of a three-tiered computer architecture; the hardware at the AFSS's which becomes unsupportable earliest, Flight Service Data Processing Systems (FSDPS) at the Air Route Traffic Control Centers, and Aviation Weather Processors (AWP) at the NADIN facilities. The FSDPS and AWP hardware is supportable till the 1998-1999 timeframe.

While no formal request was made to private industry to solicit potential solutions, the FAA maintains a continuous dialogue with industry sources with capabilities in the flight plan filing and weather information processing areas. This interaction helped to determine industry capabilities in replacing the M1FC functionality with current technology.

Mr. SABO. Has industry provided an alternative for the use of existing M1FC hardware or recommendations for extending the life of existing M1FC hardware?

[The information follows:]

Yes, industry has demonstrated commercial off-the-shelf technology which could, with minor modifications, interface with the existing Flight Service Automation System and provide an alternative for the M1FC hardware located at the AFSS's. Extending the life of the existing hardware is not feasible due to supply support problems, nor desirable given the antiquated technology it represents.

Mr. SABO. The FAA has requested \$2 million in fiscal year 1995 to procure an integrated replacement system for the Model 1 Full Capacity (M1FC) and the interim graphic weather display system equipment located in automated flight service stations. The replacement system, the operational and supportability system (OASIS) will be a personal computer-based system. It is the committee's understanding that at the past two FAA-sponsored vendor demonstrations (in Fort Lauderdale and Washington, D.C.) Industry demonstrated replacement systems for the M1FC automated flight service station hardware and software that appeared to provide the same or better functionality as the current system? Was this indeed the case?

[The information follows:]

Yes, at the two referenced demonstrations several industry sources demonstrated commercial off-the-shelf systems which appeared to provide similar functionality to the current M1FC system with the additional benefit of a modern, user-friendly computer human interface. As these events were technology demonstrations, the systems were not tested to validate FAA M1FC requirements specification compliance.

Mr. SABO. If a solution is available from industry today, and given the FAA plans call for an off-the-shelf system with open system architecture, why does the FAA schedule require 14 months from contract award to the first deployment of the new system?

[The information follows:]

Commercial off-the-shelf systems do exist that can replace the M1FC functionality at the AFSS's. These systems, though providing the required functionality, do not provide the required interface with the FDPS computers of the Flight Service Automation System. The time required for the successful offeror of the OASIS procurement to develop this interface and the FAA to thoroughly test it along with the rest of the replacement system prior to deployment, is estimated to be 14 months. The FAA will make documentation for this interface available to all potential offerors to reduce the development risk of the interface. This development effort is minimal by industry standards.

COMPUTER BASED INTRUCTIONS (CBI)

Mr. SABO. Was there a commercial off-the-shelf solution which did not require additional software development to interface with the existing systems at the time the FAA expended eight months of effort to develop a new personal computer-based academy training system? If yes, what is the benefit from the FAA's eight-month expenditure?

[The information follows:]

There is no completely off-the-shelf solution for the requirement to run all existing FAA CBI courses and new courses which are developed using the new software tools. The FAA system is composed of primarily off-the-shelf hardware and software with careful integration and custom software and drivers where required.

The advantages are numerous. Some are:

1. Using a single system rather than multiple systems reduces maintenance costs and requires less space in FAA facilities which are often over-crowded already.
2. Using the new development tools shortens course development time by more than 25%. This repays our initial investment in the new technology over and over. The courseware investment will be much higher than equipment investment over time.
3. The FAA gains from compatibility with courseware and software from many sources in the private sector.
4. The FAA solution is compatible with the Aviation Industry Computer Based Instruction Committee standards. Several companies in this industry are now developing similar systems. These standards allow courses developed by one member to be used by any other member on their delivery systems. The standards remove the previous requirement to have one set of computers to deliver training about Boeing aircraft, another set of computers for training about Airbus aircraft, a third set for Douglas aircraft, etc. The FAA has already benefited from this compatibility by sharing courseware with one of the members. We expect much more sharing in the future. Additionally, participation on this committee supports the FAA's mission to promote aviation.

FAA COORDINATION WITH EPA PHILADELPHIA EXPANSION

Mr. FOGLIETTA. Mr. Hinson, we have a situation in Philadelphia in which the Philadelphia International Airport is planning on expanding its operations with the construction of a new runway. This committee supports this project and provided funding for the project in last year's bill.

Like all other major projects, the airport must get all environmental clearances for the project to proceed. The airport has requested a finding of no significant impact. Further, the airport has fully cooperated with the EPA engaging in extensive tests and data analysis.

I am told that this long process could be streamlined with more aggressive coordination between the FAA and the EPA. I understand that you recently met with EPA Administrator Carol Browner to discuss how your two agencies may better work together. Could you give us some indication what steps are being taken to improve coordination between your two agencies that might aid airports and airport projects like ours in Philadelphia. I believe it is an excellent example of why interagency cooperation and coordination is essential.

[The information follows:]

The Federal Aviation Administration (FAA) and the Environmental Protection Agency (EPA) did recently meet to discuss how our two agencies may better work together. As a result, it was agreed to designate senior level representatives to further meet and coordinate issues of mutual interest between our agencies. While we

have not yet had the opportunity to address specific issues we definitely see this arrangement to be beneficial in improving interagency cooperation and coordination.

Regarding the Philadelphia expansion project, an environmental assessment (EA) covering the proposed new runway has been underway for approximately 12 months. This is not considered to be an unreasonable amount of time for a project of this magnitude. We currently anticipate being able to issue a Finding of No Significant Impact (FONSI) by mid-summer 1994.

EPA has stated it cannot agree with a FONSI until it has had a chance to review data (to be submitted by Philadelphia) regarding project impacts on a sole source aquifer that underlies the airport. The aquifer supplies drinking water to a portion of New Jersey. The EPA further must be satisfied with the measures that will be used to protect the integrity of a toxic waste site that lies above the aquifer and that the new runway is to be built over. The FAA and the City and its consultants have been working diligently to provide EPA with the information it has requested. In return, EPA has committed to an expeditious review. EPA has been very complimentary on the good cooperation exhibited among all parties and anticipates a satisfactory and timely resolution of its concerns.

PRECISION RUNWAY MONITOR INSTALLATION SCHEDULE

Mr. FOGLIETTA. The new runway at Philadelphia International Airport will substantially increase the airfield capacity under instrument weather conditions. In order to optimize the use of this new runway, a precision runway monitor is needed to be deployed for operation in late 1998. What is your schedule for the installation of PRMs in general and in Philadelphia specifically.

[The information follows:]

The proposed PRM sites and anticipated installations are as follows:

Location	Installation
1. Minn/St. Paul	October 1994.
2. Atlanta	January 1995.
3. RDU	April 1995.
4. JFK	August 1995.
5. TBD	December 1995.

Philadelphia was considered for the 5th PRM site location, however, since the proposed commuter runway will not be completed until late 1998/1999 the fifth site will be determined at a later date.

GPS DIFFERENTIAL CORRECTIONS OVER LORAN-C

Mr. MCDADE. Apparently, recent technical work has shown that it is possible for GPS differential corrections and integrity messages to be provided to users over the existing Loran-C network and that augmentation of GPS with Loran-C can provide highly reliable accuracy, integrity and availability redundancy for the full range of transport needs.

Since Loran is already in wide use and operationally proven, this would seem to be a multimodel service which could utilize existing investment and infrastructure at much less cost to the government and users than supplementary satellites or some of the other solutions which are also being proposed for GPS augmentation. Has the FAA examined the cost-benefits of augmenting GPS with Loran-C? If not, why not? If so, what has the FAA learned?

[The information follows:]

Due to the limitations of Loran-C coverage and other technical constraints, the FAA is not now considering providing GPS differential corrections and integrity messages over the existing Loran-C network. We are now engaged in an intensive effort to implement a GPS Wide Area Augmentation System (WAAS) to provide improved integrity, availability and accuracy for GPS en route navigation and preci-

sion approaches. One advantage of the WAAS concept is that it can augment GPS world-wide, including coverage of oceanic areas that Loran-C cannot reach and terrestrial areas where Loran-C is not presently installed.

LORAN AND GPS COMPATIBILITY

Mr. MCDADE. Because GPS and Loran are very compatible, doesn't it make sense to support efforts to utilize Loran and GPS technology in parallel if we are concerned about tight budgets and future costs for the government in providing navigational aids and for users who have to buy equipment and ultimately pay a share of the costs related to the system?

[The information follows:]

The FAA is an active participant in efforts by RTCA, Inc., to develop a Minimum Operational Performance Standard (MOPS) for a navigation receiver capable of utilizing GPS and Loran-C signals. When the MOPS is approved by the RTCA (projected publication date is December 1994), we will work with the users and the avionics industry to develop certification standards based on the MOPS.

Various technologies may ultimately offer the necessary augmentation for GPS. Some segments of the user community may use GPS with Loran-C; others may use GPS plus geostationary satellites (the WAAS); and still others may prefer GPS plus inertial systems. Each user segment should have the opportunity to evolve into a cost-effective end-state system.

LORAN AND GPS—FUTURE SYSTEM MIX

Mr. MCDADE. Would you agree that it makes sense to examine the compatibility of existing navigational aids like Loran with GPS and to develop cost-benefit options as to the most appropriate future system mix? If not, why not?

[The information follows:]

The Department of Transportation has initiated a study to determine the best system or mix of systems to augment GPS for all modes of transportation. The study will include some first level cost-benefit analysis, and Loran is one of the systems being considered. The results of the study are expected in the fall of 1994.

GPS AND LORAN—ON-AIR TEST AND EVALUATION

Mr. MCDADE. Since GPS and Loran together seem to hold promise, would the FAA consider some on-air test and evaluation and perhaps some equipment development research and development projects for augmenting GPS with Loran?

[The information follows:]

There are existing receivers which provide either GPS or Loran-C solutions for navigation. A number of avionics manufacturers are currently developing receivers which integrate these functions. Since the industry has already taken steps to integrate GPS and Loran, there doesn't appear to be a need for the FAA to duplicate this effort. The avionics industry and the users will ultimately determine the desirability of a Loran/GPS receiver.

CONTINENTAL CONCERNS

Mr. DELAY. For well over a year now I have been going back and forth with the FAA regarding an Instrument Landing System (ILS) at Newark International Airport. Newark serves as a major hub for the nation's fifth largest airline, Continental, and is based in my home town of Houston. Newark has over 600 departures a day. Thus, when aircraft served by Newark are delayed by air traffic control, the lag is felt throughout the country.

While the Department has finally announced that the long-awaited and approved ILS for the commuter runway will finally be in-

stalled this year, it has become apparent that another ILS is required on runway 4 Left/22 Right (the western parallel runway). It is my understanding that while there is an ILS in operation for 22 Left, when 22 Left is closed for maintenance, snow removal or there is any problem with the weather (fog, low clouds), air traffic delays begin to build-up quickly. The additional equipment would reduce delays significantly and cost approximately \$1 million for the equipment and installation. It is further my understanding that installation should be quick as no Environmental Impact Statement (EIS) will be required (an EIS was already completed for the ILS on 22 Left). What work has been done regarding this project?

[The information follows:]

Although Newark International Airport qualifies for a Category I ILS on runway 22 Right, the FAA has limited funding for ILS projects. Installation of an ILS at Newark International Airport has been supported by the FAA, however, with the limited number of ILS sites, this site did not rank among the top sites of our national priorities for this fiscal year.

Mr. DELAY. Is the FAA willing to fund this equipment and make this project a high priority?

[The information follows:]

FAA has limited the number of Category I ILS sites due to the onset of satellite navigation/landing capabilities. With the Global Positioning System (GPS) we expect to provide precision approach capabilities to several runways which currently qualify for an ILS.

You may have received some misinformation regarding the needs for an Environmental Impact Statement (EIS). For each new runway approach an EIS needs to be completed. EIS work is runway specific, not airport generic, therefore, there may be a great deal of resistance from the surrounding community due to the noise impact of a new approach.

GLOBAL POSITIONING SYSTEM (GPS)

Mr. DELAY. Regarding GPS, clearly, this technology is the premier navigation system of the future. Long-term benefits of GPS include improved on-time performance, enhanced safety, increased savings on fuel expenses, reduction in pilot workload and more direct routing. As you know, since the middle of December, one airline (Continental) has been using it successfully for flights between Denver and Aspen, Colorado. In fact, since GPS was certified for use by FAA on this route, Continental has flown 427 approaches of which 158 required use of GPS because of weather conditions. In other words, GPS has allowed some 10,000 passengers to travel between Denver and Aspen that might not have been in use. In recent weeks, the aviation trade papers have highlighted the ongoing discussions between DOT and the Department of Defense (DoD) with regard to "selective availability" which is the ability of DoD to quickly and completely alter the GPS signal as to make it ineffective for navigation. The outcome of these discussions is central to whether commercial aviation will be able to utilize the GPS for airport approaches.

What is the latest regarding these discussions and what are you doing to quickly resolve this problem?

[The information follows:]

Selective Availability (SA) allows DoD to degrade the positioning accuracy of GPS signal to the promised Standard Positioning Service (SPS) levels of 100 meters horizontal and 140 meters vertical positioning accuracy. The national security objective

of degrading the signal, through implementation of a set of parameters, is to deny GPS advantage to hostile forces. In their current state, the SA parameters do not render GPS signal ineffective for navigation. However, SA parameters beyond certain limits may pose a problem.

Currently, FAA and DoD are working together to come to a mutual understanding on SA. The initial progress has been promising and the final agreement on the SA operations is expected by Fall 1994. Meanwhile, FAA and DoD have an interim agreement on SA operations and the commercial aviation community is continuing to use GPS for approaches to the airport.

REVENUE DIVERSION

Mr. DELAY. In early February, Chairman Carr released a report which showed that 17 of 33 major airports were using airport-generated funds for non-airport purposes. While I realize that some of the airports investigated claim that they are exempted from the existing law, I believe that this report highlights a disturbing trend and may represent just the tip of the iceberg. For the record, what steps has or will the FAA take in order to safeguard against these revenue diversions? What is being done to address this serious problem?

[The information follows:]

The FAA is strengthening the audit procedures set forth in the Compliance supplement for single audits of state and local governments. Additionally, FAA is developing and implementing an action plan to counsel those airports identified as potentially in noncompliance; initiating enforcement actions in the absence of voluntary compliance, including possible suspension or reduction of any AIP discretionary or entitlement funds; developing indicators of potential noncompliance and working closely with the OIG so that airports which meet certain criteria will be examined closely and developing language for grant assurances to authorize or require special reports for FY 1995 grants under the Single Audit workslope.

Mr. DELAY. In December the Secretary of Transportation stated that he would take the lead in determining the reasonableness of airport charges. When can this Committee expect to see guidelines and definitions so that those who have concerns know whether it is worth bringing their complaints to the Secretary's and the FAA's attention?

[The information follows:]

The FAA has developed guidelines for the determination of reasonable rates and charges. Currently, the guidelines are being coordinated within the Department and will be sent to the OMB for its concurrence. We hope to have the final product ready for public release by early this summer. In addition the recommended changes to the Compliance Supplement for Single Audit will be available by June 1994.

Mr. DELAY. Both the Inspector General's office and this Committee's investigators have determined that there is a great deal of revenue diversion from airports—some permitted by law, but much which is not permitted by law. When does the Department intend to act on those revenue diversions which are not permitted by law, and what action do you see the Department taking?

[The information follows:]

In those cases where the FAA and the OIG have agreed that there is, in fact, revenue diversion not in accord with Section 511(a)(12) of the AAIA, the FAA notifies the sponsor that the funds are to be returned to the airport and will ensure that the sponsor complies with that notification. FAA has been successful in recapturing these funds from the airports.

The FAA is developing and implementing an action plan to counsel those airports identified as potentially in noncompliance and is initiating enforcement actions in the absence of voluntary compliance, including possible suspension or reduction of any AIP discretionary or entitlement funds.

FAA ADVISORY CIRCULARS

Mr. DELAY. For many years, the FAA has avoided the rule-making process by issuing advisory circulars. These circulars have the force and effect of law in many instances, but need not go through the Administrative Procedures Act process, nor are they subject to cost benefit analysis. What is being done to curb the unwarranted use of advisory circulars?

[The information follows:]

Advisory circular publications are utilized by FAA to provide non-mandatory guidance and information to the industry and the general public on a variety of policy and technical matters. Advisory circulars are not regulatory and as the name implies are advisory only. With respect to grants for airport development, the Airport and Airway Improvement Act of 1982, as amended, requires that such development be in accordance with standards established or approved by the Secretary. The advisory circulars contain standards that are acceptable to the Secretary for grant agreements and when used for this purpose are mutually agreed upon as a contractual commitment and are not imposed as a regulatory requirement. The advisory circulars relating to airport development are essentially consensus standards and are developed through a comprehensive coordination process. Drafts are distributed to all interested parties and comments solicited and analyzed. Cost effectiveness is one of the factors often raised and considered in this comprehensive review effort.

Most airport standards are highly technical and subject to periodic modifications from research and technological advancement. In applying the standards in many areas, choices must be made based on engineering judgment. It would be impracticable and unnecessary to make such complex material regulatory and would restrict the flexibility needed to adopt this guidance to meet local conditions.

REGULATORY BURDEN ON THE AIRLINE INDUSTRY

Mr. DELAY. What is being done to improve cost benefit analysis?

[The information follows:]

In keeping with the Clinton Administration's Initiative to Promote a Strong Competitive Aviation Industry the FAA is aggressively pursuing an effort to improve the quality of its cost benefit analysis. Key to this work is the improvement of the cost data the FAA uses in its analyses. The FAA is working closely with the industry on this objective and will shortly be sponsoring a joint conference with principal elements of the aviation community to explore new ways of collecting and validating the data used in cost benefit analysis. The FAA is also working on expanding the scope of its cost benefit analysis through greater applications of cost sensitivity analysis and in the development of new methods to more comprehensively estimate benefits. Throughout this process the FAA has been working closely with other elements of government to include the Office of Management and Budget and the Regulatory Policy Group which is sponsored jointly by the Department of Transportation and the President's Council of Economic Advisors.

PRECISION LANDING SYSTEM MIX

Mr. DELAY. The GAO in their testimony recommended that the FAA analyze its need for precision landing systems in general to determine which system or mix of systems could provide the most benefits at the lowest cost to both the FAA and the system's users. What action have you taken, if any, to date regarding this analysis?

[The information follows:]

The FAA and DOD have a study underway to define the long-term future precision approach architecture for the National Airspace System. Working with the aviation community, a set of operational requirements, technical requirements, and evaluation criteria have been developed and documented. Candidate system architectures have been identified and are currently being evaluated in terms of performance, costs to the government and users, operational effectiveness, technical and operational risks, institutional issues, and user community acceptance. These factors will determine which system or system mix could provide the most benefits at

the lowest cost to both the FAA and the users. Another important consideration is the transition to the preferred architecture. Recommendations based on the outcome of these assessments will be developed by a group of "stakeholders" comprised of FAA, DOD, and the user community. These recommendations will form the basis for a U.S. position on alternative architectures to be presented at a special International Civil Aviation Organization Communications/Operations Divisional Meeting in March 1995. A key item on the agenda of this meeting is a review of the ICAO plan to transition, in 1998, from ILS to MLS.

Mr. DELAY. It is my understanding that ILS systems, for example, are relatively inexpensive for both the FAA and the user, and have been requested at a rate much higher than the rate of installation. It is also my understanding that if the FAA were to buy these systems at a bulk rate where the airport could buy from the FAA rather than each facility purchasing ILS on a one-at-a-time basis, the cost could be cut significantly. Has the FAA considered this type of procurement?

[The information follows:]

ILS equipment is approximately 15-20 percent of the cost of an ILS project when considering installation and approach lighting costs. The FAA has considered the benefits of supplying ILS's to airport sponsors.

The FAA will no longer be procuring ILS's after fiscal year 1995 except for a few, high performance, Category II and III needs. Future requirements for Category I precision approach will be met with the satellite based global positioning system (GPS). With the cessation of Category I projects after fiscal year 1995, the possible value of supplying ILS's to airport sponsors is negated by the imminent transition to GPS. This type of procurement is no longer being considered by the FAA.

GRANTS IN AID FOR AIRPORTS

Mr. DELAY. For the record, what has the FAA done in the past with these two airports? What financial undertakings have taken place?

[The information follows:]

Under the Airport Improvement Program (fiscal year 1982-present), the FAA has funded two projects at Houston's Clover Field Airport for a total of \$102,266 in discretionary funds. The first grant was issued in fiscal year 1989 for \$31,500 (Federal funds) for a master plan study to determine the feasibility of public acquisition of the airport. The second grant was issued in fiscal year 1992 for \$70,766 (Federal funds) for a master plan study.

No AIP funds have been granted for projects at Houston Southwest Airport.

Mr. DELAY. Could you supply a time line for my reference regarding these events?

[The information follows:]

The two grants for Houston's Clover Field were issued in fiscal years 1989 and 1992.

CLOVER FIELD AND SOUTHWEST AIRPORT

Mr. DELAY. The City of Pearland, in my District, has expressed interest in purchasing Clover Field which is currently a reliever airport. The FAA has been reluctant to fund any further studies to look at any possible development of an existing general aviation airport until a full-blown site analysis study was undertaken with a city sponsor. Also, Missouri City has expressed interest in purchasing Houston Southwest Airport located in Arcola also in my district.

I am in the process of trying to find out where these airports fit in with the overall plan for the Houston reliever system. I am in-

terested in the most cost-effective plan that promotes growth and allows access to the growing surrounding Houston area.

For the Record, what has the FAA done in the past with these two airports? What financial undertakings have taken place?

[The information follows:]

Under the Airport Improvement Program (FY 1982-Present), the FAA has funded two projects at Houston's Clover Field Airport for a total of \$102,266 in discretionary funds. The first grant was issued in 1989 for \$31,500 (Federal funds) for a master plan study to determine the feasibility of public acquisition of the airport. The second grant was issued in 1992 for \$70,766 (Federal funds) for a master plan study.

No AIP funds have been granted for projects at Houston Southwest Airport.

Mr. DELAY. Could you supply a time line for my reference regarding these events?

[The information follows:]

The two grants for Houston's Clover Field were issued in fiscal years 1989 and 1992.

Mr. DELAY. You want to try and figure out how to support one or both of the airport acquisitions and you are interested in finding out answers to problems that arise. The two airports are relatively close together. Clover Field is a reliever airport and Houston Southwest has asked for this designation. Is that the present status?

[The information follows:]

Yes, that is the present status. Clover Field, a reliever airport, is situated approximately eight miles south-southeast of Houston William P. Hobby Airport and approximately eight miles from Houston Ellington Field. Houston Southwest Airport, a privately-owned general aviation airport, is located approximately 15 miles east of Clover Field and 13 miles southeast of Sugar Land municipal Airport, a reliever airport for Houston Intercontinental. The owner of Houston Southwest has requested it be designated a reliever airport.

In 1992 Fort Bend County expressed in interest in acquiring Houston Southwest Airport. The community of Missouri City has also expressed an interest in acquiring the airport. They have contacted the Texas Department of Transportation, Division of Aviation, which handles all of Texas general aviation facilities through the FAA State Block Grant Program. While the state office has not responded to Missouri City, the consensus of both the FAA and the Texas Division of Aviation is to not grant reliever status to Houston Southwest Airport.

Mr. DELAY. If Clover Field is sold, how will this affect the reliever status or future status of Clover Field and Southwest Airport?

[The information follows:]

If Clover Field is sold as an airport it would continue to function as a reliever airport and Southwest Airport would not be affected. If Clover Field is sold for redevelopment for non-aviation uses it would probably have little impact on the status of Southwest Airport because there are several private and public general aviation facilities in the immediate vicinity of Clover Field which could easily absorb general aviation activity currently conducted at Clover Field.

Mr. DELAY. What is the FAA's overall picture regarding this region and in particular, what is FAA's plans for this region and these airports?

[The information follows:]

The FAA's goal for the greater Houston area is to develop a system of airports to serve both commercial and general aviation needs. A primary consideration is to reduce demands on the city's air carrier airports. The Houston area has 7 existing reliever airports and two new relievers planned, Houston Westside Airport and

Houston Eastside (Baytown) Airport. The FAA currently supports the efforts to develop the two new reliever airports.

Mr. DELAY. How do they fit in for Houston, and the surrounding area in the future?

[The information follows:]

Clover Field will continue to serve as a reliever for William Hobby Airport. An analysis of the Houston area's general aviation and reliever airports completed in 1992 indicated that Houston Southwest Airport has very limited expansion capability due to a road and railroad on either side of the runway and a major highway and railroad not far to the east. In addition, a major drainage canal is located immediately north and east of the airport. The study recommended that Southwest Airport not be considered for reliever status.

CONTRACT TOWERS

Mr. DELAY. The FAA is aggressively working with the contracting out of level I FAA Air Traffic Control towers. I commend the FAA for their efforts in this regard. Has the FAA taken a look at the privatization of Level II and Level III towers in conjunction with the Level I privatization effort?

[The information follows:]

No the FAA has not looked into the privatization of Level II and Level III towers in conjunction with the Level I privatization effort. At this time, the FAA will not contract for services at control towers which are Level II and above, because of their increased interface with the instrument flight rules (IFR) system and their integral role in the overall National Airspace System. The FAA considers IFR services inherently governmental functions which are not contracted.

Mr. DELAY. If not, can you take a serious look at this idea and give me the pros and cons that would face the contracting out of Level II and Level III towers?

[The information follows:]

The FAA has not looked into the privatization of Level II and Level III towers, nor has it conducted any studies on the subject. The FAA considers instrument flight rules services inherently governmental functions which are not contracted. For this reason the FAA has not conducted any studies on the subject and has no plans to do so in the near future.

Mr. DELAY. Can you give me a cost estimate of the savings involved with this proposal?

[The information follows:]

There have been no cost estimates concerning contracting Level II and Level III towers completed, therefore there is no data to provide.

Mr. DELAY. Would it take legislative language to institute such a privatization program or could it be done in conjunction with the existing Level I tower privatization program?

[The information follows:]

To the FAA's knowledge it would not require legislative language to institute such a privatization program. It would however, require an enormous amount of upfront expenses, much more than what is associated with the current Level I tower program. There are many more employees located at Level II and Level III towers and operating costs are significantly higher than at Level I towers. In addition, the FAA considers instrument flight rules services inherently governmental functions which are not contracted. For this reason the FAA has not conducted any studies on the subject and has no plans to do so in the near future.

WEDNESDAY, APRIL 20, 1994.

FEDERAL AVIATION ADMINISTRATION

WITNESSES

LINDA DASCHLE, DEPUTY ADMINISTRATOR

GENE CONTI, DEPUTY ASSISTANT SECRETARY FOR BUDGET AND PROGRAMS, OFFICE OF THE SECRETARY

NICK STOER, ASSISTANT ADMINISTRATOR FOR BUDGET AND ACCOUNTING

MARTIN POZESKY, ASSOCIATE ADMINISTRATOR FOR SYSTEMS ENGINEERING AND DEVELOPMENT

WILLIAM POLLARD, ASSOCIATE ADMINISTRATOR FOR AIR TRAFFIC

OPENING REMARKS

Mr. CARR. We will call this morning's hearing to order and apologize to our friends for the late start. We had a journal vote just as we were scheduled to begin.

We are delighted today to have the Deputy Administrator of the FAA with us to continue FAA's testimony, and although the Deputy is not a stranger to this room, having represented the CAB in government relations, it is the first time before the Committee, and it is a real distinct personal pleasure to have you here today. We are going to put your biography in the record because it is your first appearance. Did you have any prepared remarks?

Ms. DASCHLE. No, sir.

Mr. CARR. No, okay. We had already introduced the Administrator's prepared remarks yesterday and I think what we will try to do is to expedite by getting into some questions and answers. We understand that the Administrator could not be here and was excused from being here today, but we are delighted to have you. Welcome.

Ms. DASCHLE. Thank you, Mr. Chairman. I appreciate having my first opportunity to testify before this committee. I will admit to you that my preferred choice of seating has always been in the back row. Let me say with all sincerity that I appreciate the support that you, your staff and other Members of this committee have given to me since I became the Deputy Administrator some five months ago.

Biography
of
Linda Hall Daschle
Deputy Administrator
Federal Aviation Administration

President Clinton nominated Linda Hall Daschle as Deputy Administrator for the Federal Aviation Administration, citing an 18 year long career in aviation that has ranged from weather observer to an airport and airline industry executive.

Only the second woman to hold the post of Deputy Administrator, Daschle's responsibilities include helping to administer the 53,000-person agency's nearly \$9 billion budget. The FAA's mandate includes certification of aircraft, airports, pilots, and aviation mechanics. It also operates and maintains the U.S. air traffic control system. Currently, Daschle is involved in assessing the FAA's multibillion dollar Advanced Automation System, which is designed to modernize the air traffic system to meet the demands of the 21st century. In addition, she has been instrumental in advancing the Administration's plan to set up a government corporation to run the air traffic system.

Before joining the FAA, Daschle was a vice president for the American Association of Airport Executives, a professional organization representing over 1,700 airport executives. Prior to that, she served as Director of Federal Affairs for the Air Transport Association of America, a trade organization representing the Nation's major air carriers. Daschle also was the first woman to direct the former Civil Aeronautics Board's Office of Congressional, Community and Consumer Affairs.

Born in Oklahoma, Daschle got her first aviation-related job as an official weather observer for the FAA while attending Kansas State University. Before joining the FAA, Daschle was a member of the U.S. Travel and Tourism Congressional Advisory Board and chairperson of the Oglala-Lakota College Foundation Board. The college is the only Native American four-year college in the United States.

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ADVANCED AUTOMATION SYSTEM (AAS)

Mr. CARR. Well, we are delighted to have you here. I know that other Members will be arriving and that they will have some questions. It has been my hope that today we could concentrate a little bit on AAS.

I know that you have been tasked with the job of getting the agency's arms around this massive problem and directing us to a more favorable outcome, and so while there may be a few questions that go on to other issues, and I know that will probably be the case as other Members arrive, I would like to delve into the AAS issue. If we do not do it here, we would be, I think, responsible for holding a separate AAS hearing to update the AAS hearing we had last year about this time. And I would, in the interest of time, not want to schedule an AAS-dedicated hearing.

You and the administrator and I have discussed this at great length, but I think we need to put some things on the record. I commend you for the swift way that you and the administrator have moved to take control of this particular issue. It is a time when we have seen the contractor essentially change through a change in the private sector. We have received some briefings from you on the work of the CNA, Center for Naval Analysis. We are grateful for their help and the light they have shed on this.

I wanted to get into a question that I asked of Ken Mead yesterday, and I know that you were not in the room at the time. The GAO reported that they thought there would be about a 22-month time frame to get resolution of this issue. The Loral Corporation has indicated that their time frame would be approximately, seven months shorter than that. So I wanted to get on the record from the FAA the time frame that we might want to look at as a way of establishing a marker for the committee's future oversight.

Where do you fall in the time estimate?

Ms. DASCHLE. Let me begin by telling you of the work that the Administrator asked of myself as well as the Chief Counsel after he was advised of the increase in the AAS costs. He wanted us to review the programs, schedule, as well as the costs, and to identify risk that may increase the costs for program completion.

As you know, we were asked to do this in a 45-day period. We assembled a team of FAA and DOT experts who had not been associated with the program, but who were obviously knowledgeable about that program. During that 45-day period, they interviewed some 100 individuals, and scrubbed some 300 documents. We were obviously assisted by the work of this committee as well as the General Accounting Office, the Inspector General of DOT, the unions and the users. We are very appreciative of the support they provided to us.

Because there was so much substantial data for us to examine, we did not attempt to do a bottoms-up cost analysis. Instead we started with the program office's current budget and schedule. Because the program is so complex, we tried to break it down into four main cost areas: one for completing the automation needs for the en route environment; one for completing the automation needs for terminal; one for tower, and then we had another category called ancillary or those other items that were needed to supple-

ment the program's completion such as spare parts, installation, and training of the work force.

We attempted to provide the Administrator with three estimates, essentially, three schedule scenarios by which he could assess the risk of completing the program. What we did find, Mr. Chairman, is that the more compressed the schedule, the greater the risk. In our report, we concluded that the most likely scenario involved a 20-month delay and an additional \$1 billion expenditure.

Now, let me share with you that the schedule that most of us are familiar with, and I believe the one that GAO and Loral have referenced. That schedule is the one by which we would deploy the initial sector suite system (ISSS), the en route automation program. We found that there was considerable risk to the government with the current schedule in that it would have the government take formal test acceptance of the system while critical functionality still needed to be developed and tested. I can tell you that in my own personal opinion, I am not sure that is a prudent plan for government. I think government should expect from IBM a system that has all critical functionality successfully developed and tested before IBM expects the government to take acceptance of the system.

The Loral proposal was just presented to us about a week ago. I would be happy to come back to you and provide you with more of our analysis as we continue to digest it.

[The information follows:]

We agree that the current acceptance plan has considerable risk. The Loral "Fast Track" proposal reduces Government risk by deferring acceptance until all critical functionality is included in the system. The "Fast Track" proposal is attractive in concept and it is being considered by the Recovery Team.

AAS SCHEDULE DELAY

Mr. CARR. In other words, the difference between a 7-month delay and a 20-month delay is this particular proposal, this feature of accepting the system. Can you expand on your testimony and tell us exactly what are those critical functionality items that would be required to be accepted before full testing?

Ms. DASCHLE. Much of the functionality is related to what the controller needs to do with this automation. In specific areas I can tell you that the agency, as well as IBM, have not perfected the automation of flight strip processing. Although I understand that a simplified prototype has been developed and that it is being evaluated.

We have not come to a conclusion about a need for a backup system, as we refer to it, "continuous ops." I can tell you that there is considerable debate about a baseline system that is to have an incredible requirement for availability and reliability. As you know, the system by design is only to be down not more than roughly three seconds per year. So you would have to question, or at least I think we should be questioning, why we need a backup system. On the other hand, our controller work force is concerned about any type of failure within the system and being left without an independent source of radar data.

On the continuous ops, let me just say we have not come to any conclusion in that area. So there is still significant work that needs

to be developed as well as tested. Under the current program, we would be taking formal test acceptance in September. I can tell you, Mr. Chairman, we are not ready to take formal test acceptance.

AAS REVIEW BY THE CENTER FOR NAVAL ANALYSIS

Mr. CARR. Since this is a relatively new development, I am wondering if the Center for Naval Analysis has had a chance to look at this proposal. Do you know?

Ms. DASCHLE. I am not aware if the Administrator has given to CNA Loral's new approach to developing ISSS, and I will check into that and get back to you.

Mr. CARR. Well, it would be helpful, I think, to have their opinion as well, and perhaps supplied to us by letter. And I might say, because we are talking about this, we probably should invite Loral to give us a paper that explains what their point of view is, too. I am trying to do this in a way that makes a complete record without holding a dedicated AAS hearing. That consumes a great deal of everyone's time and yours and Loral's and the CNA. So if we can just get the information without a formal hearing, we would like to do that.

[The information follows:]

We will be discussing this issue with CNA and Loral in the very near future.

AAS—FAA AND CNA REVIEWS

Mr. CARR. Your in-house review, led by you and the Chief Counsel, what is going to happen to that review process? I am concerned, I guess, that you are exercising your own in-house oversight on this, and then we have CNA exercising some oversight on this. Are both those oversight channels going to continue for a while? Is one going to give way to the other? How do you see the internal oversight proceeding?

Ms. DASCHLE. Well, the task of the different reviews was somewhat different. We were asked to do a cost and schedule risk assessment and CNA has been asked to provide recommendations on improving management of the program as well as containing costs. There is a third review that is almost completed, and that is to revalidate our automation requirements. We essentially started that effort, which is led by myself as well as Monte Belger, with a threshold question that if AAS was canceled today what would the agency's automation needs be, both short-term, between now and the year 2000, and long-term. For a requirement to be validated, it had to meet or exceed a deficiency in terms of safety, and capacity or provide improved efficiency for either FAA operations or the user community.

Those three reports, which I think have been and will be very instrumental to the agency, are now being reviewed by what we are calling a recovery team. That team is lead by our new AAS program manager, Bob Valone. It is his job, as well as that of his team, to come back to the Administrator in the May timeframe with, as I would essentially call it, the health care plan for AAS. This plan would guide us as to how to take it out of intensive care

and exactly what steps we need to take to know where we want to go with this automation program.

At this time we do not have plans, although I will talk to the Administrator and come back to you with a more definitive answer, to continue to keep CNA in the business of providing oversight. That could certainly change so I will keep you apprised of that.

Mr. CARR. I am not making an argument one way or the other. I just want to endorse that their information was useful to us as well.

Ms. DASCHLE. Yes, it was.

Mr. CARR. And I think in a troubled program like this, it has been helpful to get some other perspectives. It is very hard to do that, and I thought that that was a good idea of the Administrator's and/or yours, whoever thought that one up.

Ms. DASCHLE. If I may just offer, given the investment that I have made to date in this program, I plan on staying with it.

AAS—COST OVERRUN

Mr. CARR. I am sure. We are told of the \$1.2 billion estimated overrun, about \$750 million would be for the replan. Is that an accurate figure?

Ms. DASCHLE. That is correct.

Mr. CARR. Now, of course Mr. Del Balzo said last year that the overrun would be no more than \$93 million, and he said that the FAA hoped to avoid some or all of the costs in negotiations with the contractor. Is there a reason why that estimate is now so far off?

Ms. DASCHLE. I am not sure that I can provide you with any one reason. I would be happy to come back to you with a response for the record.

[The information follows:]

Last year during appropriations hearings, the FAA testified that there was a potential for cost growth of approximately \$200 million. This was based on the following assumptions (dollars in millions).

Program baseline	\$4,703.4
Estimate to complete the contract	\$707.0
IBM fee loss	(93.0)
Reserved for cost growth	(222.0)
Budget for over FPI target cost	(157.0)

Estimated increase to cost baseline	\$235.0
Revised program estimate	\$4,938.4

The AAS Replan proposal was received from IBM in June 1993. In *September* 1993, the magnitude of the contract cost overrun was quantified as part of the Replan negotiations. The negotiated overrun was \$741 million, which compares with the FAA estimate in March 1993 of \$707 million.

The cost of the negotiated contract changes is only a part of the projected program cost growth of \$1.2 billion. The majority cost growth resulted from changes in basic assumptions that we used to offset cost growth estimate last March and new requirements that were not known last year.

AAS—REPORTING COST OVERRUNS

Mr. CARR. We just have some discrepancies that, as we bring our record forward, we would like to get some rationale why estimates of the past were so far off relative to what is being produced now as an estimate.

One of the problems the committee has had is that even according to DOT's major acquisition policies and procedures manual, there is a requirement to actively monitor contract performance. And as early as 1990, IBM began reporting significant overruns. That information was really not adequately conveyed to Congress, to this committee anyway. I understand that the program manager is no longer with us, but was there any information that you were able to develop that indicated that there was an intent to conceal information?

Ms. DASCHLE. No, I don't have evidence that there was an attempt to conceal information. I will tell you that the Administrator and I have been troubled at times by an inability to get the bad news on the AAS program. I think we are fostering a change within the agency. As well, CNA was asked to look at all of the support contractors, the scope of their work, and the value of the work that they have been providing to this program. I would say that the question of their effectiveness has not been answered and will not be until we get CNA's report. I believe the Administrator shared with you yesterday that he expects to get it at the end of this month.

Mr. CARR. Speaking just as a management cultural problem, bad news in any organization is hard to percolate up to the top. Have you identified that that may be a particular problem at the FAA?

Ms. DASCHLE. Let me just say with this program, it has been difficult to always ask the right question. Therefore, you find that you ask many questions. But, again, I have found that the people involved with the program now are very willing to have an appropriate exchange with the top leadership of the agency.

As you know, last year Mr. Del Balzo testified before Congress that we were changing the structure of this program and that it would report directly to the Administrator. I think that that has been a positive change. The program manager and I talk frequently, almost daily through our electronic information highway. We also meet regularly to discuss what is happening with the program.

Mr. CARR. Who does the new program manager report to?

Ms. DASCHLE. To the administrator.

Mr. CARR. Directly?

Ms. DASCHLE. Yes, directly, through me. I am not sure that on our organizational chart that is as clear as perhaps it should be, but the program manager knows that his boss is the Administrator of the FAA. He is to report to the Administrator.

Mr. CARR. Well, I am trying to ask the right question now. In the context of the organization of the FAA, there are a number of people who probably report to the administrator. I suppose, in theory, anyone can report to the administrator; right?

Ms. DASCHLE. Yes.

Mr. CARR. But there is also a chain of command. You are the deputy. I don't want to see us get into a situation where we end up having a deputy administrator for AAS, because I think it is important from the standpoint of the knowledge that you have and the whole coordination of the agency that the program manager understand that. Can you help me out here?

Ms. DASCHLE. If I am understanding the intent behind your question, let me just share with you that I am very confident that the program manager understands the involvement of the deputy in this program. I am also confident that all other senior managers at the FAA also understand the importance of the deputy's role.

AAS—LORAL CONTRACT

Mr. CARR. You are now spending close to a million dollars a day on the Loral contract, which could be changed significantly, possibly even terminated. I don't think that is a likelihood. Again, going to this delay, do we not have an obligation to move quickly?

Ms. DASCHLE. We absolutely do. Let me share with you that the Administrator is very concerned about making sure that we are investing properly in this program. We have deferred spending. In fact, the Administrator announced a deferral approximately 30 days ago in one segment of the AAS program when as a result of our task force findings it was found that a particular segment was not well justified. We have slowed down progress payments to IBM, and we are only funding this program on a month-to-month increment. But time is of the essence, absolutely.

AAS—PROGRAMMING NEW LINES OF CODE

Mr. CARR. In the original agreement with IBM, apparently the company estimated that computer programmers could produce about 200 lines of new code a month and it turns out they can only do about 80 lines. Then the slowdown caused them to hire either more programmers or delay the schedule. Apparently, this was not picked up in the FAA monitoring of the program. Argue with that, if I am wrong, but that was my information.

I guess the question is, as we move forward, if my premise is accurate, what is being done in the FAA to monitor that things like lines of code goals are being met?

Ms. DASCHLE. I am glad you asked.

Mr. CARR. That is pretty detailed stuff, but it is out of all those little details that this massive overrun has been built.

Ms. DASCHLE. I am glad that you asked the question, Mr. Chairman. I can tell you that one of the charges that the new program manager was given by the administrator and myself was to assess his resources to determine if he had any deficiencies. Within a week he came to us and said, I do have a deficiency; I don't have the software engineering expertise that I believe this program requires. As a result, we have given him an exemption from our hiring freeze to go out and hire at least two and to come back and tell us if in fact he needs more.

Mr. CARR. And these people will monitor lines of code and accuracy of code?

Ms. DASCHLE. Yes.

Mr. CARR. Heck, I could do 200 lines a month. It would not add up to anything, but I could probably do 3,000 lines a month. Is there a new goal?

Ms. DASCHLE. There may be. I do not have a new goal yet.

Mr. CARR. Could you supply that to us? I don't want to put too much importance on lines of code written, because it is a lot more complicated than that. But we do want to put down some markers

here that if you do not hit a marker, it does not prove you failed, but it says we have to start asking some questions. That is what I think all of us want to do. And I assume that the agency is putting down markers, too.

Ms. DASCHLE. We are.

Mr. CARR. It is inherent in the monitoring process.

Ms. DASCHLE. When you look at this program, at least in terms of software development, I think you come to the conclusion that, yes, the agency and IBM were and are pushing state-of-the-art technology. However, IBM's productivity levels, performance to date, has been poor. FAA's ability to manage as well as to prevent continuous changes in requirements affecting that software development has been poor. We are trying to correct IBM's performance as well as our ability to manage, and we intend to quit imposing new changes or new requirements upon the software development.

AAS—LORAL APPROACH TO PROTOTYPE SYSTEM

Mr. CARR. Loral's approach places a priority on getting the prototype system into the hands of the controllers so that their concerns can be included in a final design. Do you think that they are aware of the operations of the development and demonstration facility which has had hundreds of controllers testing AAS design from all the way from 1991 to the present? Are they aware of that?

Ms. DASCHLE. I believe that they are, yes.

Mr. CARR. Do you think they were aware of that when they made the proposal to you, then?

Ms. DASCHLE. I can only share with you the comments that Mr. Schwartz as well as Mr. Lanza have provided to the administrator and myself. They were fully aware of all of the problems that have plagued this program.

AAS—LEVEL OF CONTROLLER INPUT

Mr. CARR. Of course, you can flip that over and too many cooks can get in the kitchen. One area that some might say has been an AAS problem is that too many controllers have been giving their input. It seems that might be one of the reasons the software has had to be changed over and over again.

I am just wondering, between you and Loral and your new program manager, what can you say about the appropriate level of controller input? We could get every controller in there with every idiosyncrasy that they have developed on how they handle aircraft, and what they would like to see the machine do to make sure that their particular way of doing things is easier, rather than requiring them to conform to some kinds of standards. What is the appropriate level of controller input here?

It seems to me, just going on for a second while you are framing an answer, that the biggest disappointment I have had in this whole process, from the very first day I heard Lynn Helms testify about it until now, is that the promised payoffs for the ultimate consumer, the taxpayer of the country, have been sidetracked, and that a lot of energy has been put into trying to please the intermediate consumer, who is the air traffic controller, on the assumption if that person is taken care of, there will trickle down some

benefits to the air carriers, and there will be benefits to civil aviation in general, and airports and fuel savings and everything else.

But I think there has been an egocentricity, if you would, to the goals of this program. The notion that we are trying to satisfy too many controllers and not trying to aim toward an end product has been one of the major stumbling blocks of this program. Not the only one, but one of the things that has led to an accumulation of cost. So at what point do we say, all right, we have enough controller input and we are going to go forward? Maybe Loral should not be too concerned with more controller input.

Ms. DASCHLE. Let me try to respond by sharing with you, Mr. Chairman, the insight that I have after the past five months of reviewing this program. I think the controller input, unfortunately, was not sought early enough and that the controllers have provided the agency with some very valuable insight into making this program work. For example, I was told the electronic flight strip first designed would not have been of benefit for the controllers. It would have required some 52 key strokes just to enter in a particular command, and the controllers questioned that. I think it was probably a legitimate question. The agency and the contractor are now trying to come up with a simplified approach.

I believe that the controller input is very valuable. I think, however, we need to make sure that we understand what our requirements are. I will tell you that we have had controllers, as well as NATCA and PASS, our two unions representing the controller work force, and the maintenance work force, involved in our revalidation of requirement effort. We found that very valuable. They told us some things that perhaps we are designing that they do not believe we need. We believe that their input, suffice it to say, has been valuable and will continue to be valuable to us.

Mr. CARR. But I guess my question is, has not an enormous amount of this input already been furnished? Is it not time to freeze that for a while and get on and develop and deploy a system? I am sure at the end of the first four or five years there will be an opportunity to update. There will be an opportunity for virtually every controller in America to have a say at some point. Isn't it time to just stop controller input and get the darned thing produced?

Ms. DASCHLE. I am not sure it is time to stop getting controller input. I do think that the agency has to make a decision about the baseline system and that we have to be committed to training our controllers to understand the system. I will tell you in our task force review as we looked at the program, we were concerned that not enough attention had been given to the training for our controller work force as well as the maintenance work force on this new automation.

CONSOLIDATION PLAN

Mr. CARR. We have many more questions on AAS, but I think they can be asked for the record. As I indicated to the administrator yesterday, we are operating under a bit of time compression because of the expectation that the health care debate is going to be in July and our appropriations are going to be in June and we are going to have to crank stuff out a little quicker than we have

been accustomed to, we would ask that you and your agency turn around our request for questions as quickly as possible. You always do. I am not trying to point out a deficiency, but I want to underscore this year that we have a very, very serious problem.

We have had a chance over a period of months now to talk generally about consolidation. One of the supposed benefits of the modernization was that we were going to have greater control in safety in the system but fewer facilities, and that was one of the things that was promised to the American taxpayer.

Last year before you came on board, the FAA said it would pursue a limited consolidation strategy for air traffic control facilities, which, in effect, abandoned the plans under way since 1983 for significant consolidation.

I have made it quite clear that I am opposed to limited consolidation, particularly in the context of a declining budget. It seems to me the pressure on these budgets is not going to abate, and that we really must press for a greater consolidation than the limited consolidation. I am wondering if you have had an opportunity, since you have been on board, to review the limited consolidation proposal. I would be absolutely delighted if you were to be able to tell me that you think the FAA can do better.

Ms. DASCHLE. Let me share with you, Mr. Chairman, that I recently was briefed on the agency's new consolidation plan. I have some questions about the methodology, so I would like to reserve any judgment that I have on that consolidation plan at this time. And I will come back to you in a very short time frame once I get the answers.

Mr. CARR. Well, I would appreciate that.

CONSOLIDATION PLAN—BASIS FOR FAA'S PLAN

I know that a chunk of the methodology involves assumptions about line charges for communications. We went through this with flight service consolidation, so I know a little bit about some of the methodology, although I am sure that it is more complex and of a grander scale than the flight service consolidation. But it always seemed to me that the assumptions in the methodology helped support a pre-determined conclusion.

We have seen tremendous changes in the pricing of telephone rates, for example. I think if we knew then what we know today, we would have consolidated flight service stations a good bit differently than we did.

One of the things that I want to say to you is that it was relayed to me by the folks who were caretakers of the administration last year, that limited consolidation strategy was also based on an assumption that political opposition would prevent anything greater than just a limited consolidation. And while I am very familiar with how people on my side of the dais react to the notion that some facility in their district is going to be closed, it seems to me that there are strategies that can be pursued that will, in fact, get a consolidation that we want. It is not something to be dismissed, but it is also not something to retreat from.

We have base closing commissions now, where we manage to figure out a way to do all kinds of locally unpopular things for the common good of the country, and if we need to do a facilities clos-

ing commission at the FAA and have a procedure for doing that, we can do that, too.

I would also say that I know the FAA felt burned from the experience of the flight service station consolidation exercise, but closing flight service stations had a political component to it that would not be present in consolidating TRACONS, would not be present in consolidating air traffic control centers or any other facilities, and I do not think that we need to conclude that Members of Congress are going to always have their way in preventing something from being closed.

So I was really bothered by the FAA's excuse that we could not consolidate more because Members of Congress would end up opposing us anyway, so why even go through it. I think you need to do that, if for no other reason than to put the monkey on our back as to why we are not receiving the benefits of the modernization.

We expect the agency to give us the best advice and then let us take the political lumps if we screw up. Do not anticipate that we are going to screw up and screw up for us. That is not doing the taxpayers a favor.

We have to answer to the taxpayers. So if we mess up on that, I hope that the taxpayers would hold us accountable. But I think we can do better politically on consolidation.

I think there is a change in attitude in the Congress about facilities; there is a change in attitude about pork barrel, if you will. I do not think aviation services are pork barrel, but it seems to me that there is a change in mood in the country and I think we should take advantage of that and get some benefits out of this modernization in terms of long-term operating costs of the system.

DUATS—RATIONALE FOR ELIMINATING

I would like to ask you a couple of questions about DUATS. Last year, the FAA proposed to save \$11 million by discontinuing financial support for DUATS. Congress ultimately approved \$9 million to continue the program through the fiscal year, and, once again, the fiscal year 1995 budget request did not include money for DUATS.

Could you give us the agency's rationale for eliminating DUATS?

Ms. DASCHLE. The effectiveness and the reliability of preflight weather briefings as well as filing the flight plans, which I must tell you was my first job with the FAA, is of great importance, we recognize, to the customer. To understand how best FAA should provide these services, the Administrator did ask one of our research advisory subcommittees, led by a former Administrator, Don Engen, to look at these services and provide him with some recommendations. I have been told that report is expected at the end of this month. The role of DUATS will be an issue discussed. I would be happy to provide you and Members of this committee with a copy of that report when it is completed.

[The information follows:]

The FAA proposed to eliminate the funding for DUATS for the following reasons: (1) The service is essentially a duplication of the flight service briefing. (2) AFSS/FSS preflight briefings are available at no cost to the user and are adequate for safety of flight. (3) AFSS/FSS's can handle the increased workload if pilots increase their reliance on the service. (4) Other private concerns also provide this service. The FAA essentially subsidizes only two of these companies. (5) We need to focus

our resources on higher priority FAA requirements which are not available in the private sector.

Ms. DASCHLE. Given the budgetary constraint and the fact that pilots can call an 800 toll free line which the FAA operates to provide weather briefings as well as file flight plans, we did not request the continuation of the DUATS subsidy in the 1995 budget.

DUATS—REPORT ON RESTRUCTURING THE PROGRAM

Mr. CARR. In last year's conference report, we directed the FAA to work with the GAO on a report on the potential for a restructured program that would use new, more efficient and, hopefully, more affordable services. Do you know if that was done?

Ms. DASCHLE. Let me ask Nick Stoer if he has information.

Mr. STOER. My understanding is that the GAO, when they learned that we were going to convene a subcommittee of the R&D committee under Don Engen to look into the whole area of preflight weather services, decided to postpone kicking off a detailed review until Admiral Engen's work was completed. The GAO has actually sat in on the meetings of that advisory subcommittee. Last week GAO came in with their entrance interview to do a full-blown review of DUATS now in light of the final work of the Engen subcommittee. I would expect their work to take maybe three months, four months, something along those lines.

DUATS—FSS VS. DUATS USE

Mr. CARR. Okay. In last year's hearing, the Acting Administrator told us a little less than three-quarters of the people who use DUATS also call a flight service station, but in answer to questions submitted for the record, the percentage calling the flight service station was stated at 85 percent. Did the FAA conduct a survey to make that determination and, if not, what was the information based on?

Mr. STOER. The subcommittee that Don Engen has pulled together, has assembled a fair amount of information, both from the vendors as well as the FAA's own assessment of the data. We have looked at a range of alternatives—I am sorry, a range of estimates. We are in the process of going back to try to revalidate some of those estimates. We believe that about 80 percent of the calls coming in on DUATS are from licensed pilots, about 20 percent are from other users.

Mr. CARR. Well, I guess this all leads to a question that if DUATS is terminated, wouldn't the FAA need more funding for the additional workload to be handled by flight service stations?

Mr. STOER. We believe not. We believe that there is sufficient capacity in the flight service station program to absorb any shift in workload along those lines. A second point would be that of the total number of calls coming into DUATS, we have reason to believe that there are multiple calls being made to the DUATS service by a pilot prior to a flight.

They might simply reduce that to one or two calls to a flight service station. So we believe it is absorbable within our current work force.

AIR TRAFFIC CONTROLLER TERMINOLOGY

Mr. CARR. I want to talk briefly about FAA measurements. Terminology, I guess would be a better word, and I am going to get on my hobby horse about full performance controllers again. I have asked the agency to look at that. The agency has repeatedly said, no, we are not going to change; we are comfortable with the terminology; and if we do not have this terminology, we are going to see a loss of our manhood or something.

I don't know what it is, but I want to reiterate that notwithstanding what controllers think, it is a weapon that is used against the FAA, allowing misinformed people to mislead the public, often through the media, to think that if you are not fully qualified—an FPL—that you are incompetent. And yet we all know that fully qualified means a different thing to the controller and the management work force than it does to the public.

I think it operates as a political nightmare out there. I don't expect the response this year to be any different. It is like the FAA culture of "we are the FAA." Congressmen come and go, and administrators and deputies come and go, and this is our culture and this is the way we like it and we are not going to change. But I think that is an attitude the FAA really must examine.

There is some cultural changes that are necessary in the FAA. Not that this issue is the one that is going to answer all the problems, but the fact is that not having a concern about the public relations aspects of some internal terminology is wrong.

No one here is suggesting that we change practices. All we are asking for is a word change. Maybe you have a comment about it and maybe we can get Mr. Pollard to say a word or two about it.

Ms. DASCHLE. My comment, Mr. Chairman, is I would be pleased to look into the labeling issue, as you have just highlighted.

Mr. POLLARD. I am getting some notes passed here, but I am Bill Pollard, Associate Administrator for Air Traffic. I think what you described as public relations, at least in our minds now, we have gone beyond that. We do not seem to have a lot of confusion, at least with the media and with Members of Congress, any more on what a full performance level controller is. Ideally, if we could just call them "controllers," I think that would be the greatest thing. We have introduced the term "operational controller," which means those people that are productive and have checked out on two or more positions within the facility. That is about 95 percent of our controller work force now fall in that category.

I think the reason some of the concern and interest in full performance level has dissipated is because our numbers are about the same as they were prior to the strike. We are approaching 13,000 in the full performance level. It really, truly, sir, is not a manhood issue, because it would make it much easier for all of us if we just had controller as a definition, and reported on them.

You asked about the study and our responses. As I recall I was part of the initiation of the study. I think what we found out is that because of what we view, and maybe we have the wrong view of the understanding of that, now would actually be more confusing to try to go out, and I use the term loosely, reeducate the people that follow those numbers.

Mr. CARR. Well——

Ms. DASCHLE. I think I heard that we are in agreement. I hope that I did, in terms of the definition.

Mr. POLLARD. Are you looking for a response from me? We are in agreement that there is probably a better way to define it, but I am not sure if we are in agreement that it would make it more understandable from the people that track those numbers if we change the terminology. I think that is kind of where we are.

Ms. DASCHLE. Let me look into it, Mr. Chairman.

DEFINITION OF DELAYS

Mr. CARR. Well, once again, the agency trying to fit the world to its own internal needs rather than understanding that we are a service organization and in our various respects we report to the American people. We ought to use terminology that they can understand when we can and get our own troops on board with that terminology, rather than trying to make the entire universe understand our jargon and suffer the occasional misunderstandings that cause us all problems.

Another measurement has to do with the measurement of air traffic delay. The magnitude of air traffic delays is only one measure of the efficiency of the system. And while we try to measure things and simplify things, in the process of simplification we generally leave some important piece of information out. The data is frequently misinterpreted, since, obviously, not all air traffic delays are under the control of the FAA.

About 65 percent of all air traffic delays are caused by weather, but we sometimes read in the media and those who have modal preferences other than aviation, let's put it that way, who are always talking about air traffic control delays, the implication is these delays are caused by bad management and ineffective technology, which we know is not true.

Last year, Mr. Pozesky said we probably should have a measure that further defines air traffic delays to "preventable" and "unpreventable." Nothing has happened in the last year that I have seen that says you are moving toward changing the measure to give the American public better information or for more relevant information.

Ms. DASCHLE. I will ask Marty to join me in trying to respond to that. I must admit, Mr. Chairman, that until I arrived at the FAA, I was not aware that there were different ways to measure delays. I have been told that as part of the agency objectives in 1994, we are to work with the industry and come up with a common definition for delays. Marty, let me ask you to join me.

Mr. POZESKY. Marty Pozesky, Associate Administrator for Systems Engineering and Development.

The context of last year's conversation was that we needed to concentrate our technology on preventable delays, not nonpreventable. The goal of making that distinction is now in our strategic plan. It is my understanding that we are committed to try to get an agreement with the airlines—and Bill Pollard may want to speak because I know he is working on the exact definition of this.

We are looking to prioritize our technology to deal with preventable delays. We have very similar sympathies to what you are talking about. We have run into airlines that account for their delays, their push-back and operational delays, which make ATC system delays look a lot worse. We clearly have a dual-accounting problem and are trying to get out from under that. We have a goal in 1994 to try to get an agreement.

Mr. CARR. Let me interrupt there. I have been getting involved in this and I have let it go. But there is a vote on and I now have to scream down the hall to make that vote. I will be right back.
[Recess.]

TYPES OF DELAYS

Mr. CARR. I just wanted to finish up with this air traffic delay issue, and I think, Mr. Pozesky, you probably put your finger on it, but my mind was drifting towards those bells that were calling us to a vote.

I want to get back into the delay issue.

It would seem that gate delays and taxi-out delays and airborne delays could be considered related to air traffic control, absent weather, but that taxi-in delays are almost entirely related to airport and airline operations. When the airlines report total delays to you, do they include in those numbers that portion of the delay which is the taxi-in phase; do you know?

Mr. POZESKY. Mr. Carr, I do not personally know. Maybe Mr. Pollard can help us out on that specific question.

Mr. POLLARD. I am not sure I can give a complete answer but I will simply say three things. First of all, when we measure air traffic delays we are measuring the performance in the air traffic system. Those are the delays of 15 minutes or more that are caused by an air traffic problem. An example that we like to use is, if a carrier is an hour late pushing back from the gate, that would be a delay they would report. But if we clear that aircraft and the aircraft departs within 15 minutes, it would not be a delay for us. So there are different delays. In addition to that, there are delays that the carriers report to the Department, which measures the sense of the industry, and that are based on arrival times at destination.

To answer your question specifically, if an aircraft lands and takes 20 minutes to reach the gate, that is not a delay in our system. It possibly could be reported as an arrival delay by the carrier. We report delays caused by airborne traffic of 15 minutes or more. They report smaller numbers than that. They report from 5 and 8 minutes, if it is caused by something mechanical or crew scheduling, those types of things.

AIRPORT CONGESTION DELAYS

Mr. CARR. One form of delay that would not be related necessarily to air traffic delay, but would still be a system delay, presumably addressable by the AIP maybe at some point, is airport congestion delays.

Mr. POZESKY. Yes.

Mr. CARR. Where do we pick up that delay?

Mr. POLLARD. If those are more than 15 minutes, they are picked up in our system. In other words, if the capacity of an airport di-

minishes from, we will use Chicago, from 180 in VFR conditions because of instrument conditions down to 90, and the schedules are built as such for 180 operations, then we accept those. That is where I think the preventable delays are that we talk about and that Marty talked about last year. That is where we can increase the capacity of that airport through ground installations of precision runway monitors or other types of equipment. So from the FAA's standpoint of making the instrument capacity of that airport the same as the VFR capacity, that is how we would reduce the delays. But that would be picked up in our system as a delay.

Mr. CARR. Ground traffic?

Mr. POLLARD. Well, the way it would be picked up is we would put in a traffic management program for the airport where the capacity is reduced. Our attempt for the past 10 years has been to hold traffic on the ground and delay departure so that when they get to the destination they technically have an arrival slot. It would normally be held on the ground at the departure airport and would be classified as a delay against the air traffic system.

AIR CARRIER TRACKING OF DELAYS

Mr. CARR. Now, you pointed out that the air carriers seem to collect more precise data on delays than the FAA. They track delays not only by airport but by phase of flight and carrier. And even though the airline data is proprietary, it would seem to me that you probably could work together with them to share the data. Do you do that?

Mr. POZESKY. Yes. We are trying to do that. We have run into this problem very recently where the airline data often includes push-back and mechanical delays. I have even seen data in which they would include inefficiency in terms of delays, for example, direct routing versus point-to-point routing. We are working with them now through, interestingly enough, an effort going on with NASA. The three of us are working to try to get a common measure of delays. It is in the context of being sure that when we do an investment analysis for some piece of technology, that we do not take credit for things that have nothing to do with that technology, for example these so-called unpreventable delays. So we are working that right now with NASA.

MEASURES FOR MODAL TRANSPORTATION DELAYS

Mr. CARR. Well, I just want to encourage you along those lines, because I think getting accurate measurements to convey to the American public will do a great deal to relieve some practical misconceptions that people have about where there is congestion and where there is not.

This is not an appropriate question for you, so I will just make it as a comment. I think, to the Office of the Secretary in particular, now that we have a Bureau of Transportation Statistics, we really ought to be developing delay measures that are comparable between air and rail.

Every time I read something out of the rail community, they seem to have a boilerplate paragraph that goes into most of their publications that say "now that the highways are congested and the airports are congested, therefore we need high speed rail."

Those assertions are floated as undeniable truths. I do not think that is fair to either highways or aviation, and it seems to me that, to the extent that rail as a mode wants to be long-distance travel as opposed to commuter rail or transit rail, they have to step up to the task of the same kind of measurements.

My own guesstimate is that I do not get any greater delays between here and Detroit than I get when I hop on the train to Philadelphia. There are times when their trains are badly delayed. There was one time when the Amtrak locomotive just totally went dead and we had to be pushed in by a MARC commuter locomotive and it took me approximately six hours to get from Philadelphia to Washington. And yet the promotional material we get out of the high speed rail partisans almost always starts with the premise that highways are congested and airports are congested and we have got planes bumping into one another, and my God, we just have to have high speed rail to solve these problems.

So I think two things need to happen. One, on the aviation side, we need to get accurate, meaningful measurements of delay, and we have to begin asking our friends at the Federal Rail Administration to supply the same thing. We have already asked in terms of analysis of Federal rail to try to do the same ticket sampling.

You know, the airlines sample every 10th ticket, but Amtrak seems to be resistant to the notion that anybody ought to sample every 10th ticket on Amtrak to see where people are really traveling on Amtrak.

So to the extent that the rails want to get in competition with the air side of things, I think we ought to have comparable measures.

Mr. CONTI. Mr. Chairman, may I make a comment?

Mr. CARR. Sure.

Mr. CONTI. As you know, the Secretary has launched an effort to work on a national, what he calls the National Transportation System, and that would be an effort to look at the national system as a system and look at all the modes and how they relate to each other, and particularly to try to link things together better.

One of the side efforts of that or one of the subefforts of that is he has charged the Bureau of Transportation Statistics to try to develop those statistics exactly as you outlined; that we need to be able to compare between modes better in terms of delays and other factors as well.

Mr. CARR. I really think we should have comparable measures of delays for train departures and train arrivals. This committee supports Amtrak and we support the Northeast Corridor in particular. It would help us, and I think it would help Amtrak, make the case that they probably need some capital improvements that they do not currently have.

So I think it would be very beneficial, at least to the audience of decision-makers and appropriators of money, to know exactly what the performance of Amtrak is. But I am also interested in making sure that the public debate that goes on with promotional materials about the virtues of modes be one that also is accurate, so that the American people get an accurate reflection of just what contribution each mode makes to the economy and what contribution to delay each mode makes to the degradation of the economy.

Mr. Wolf, do you have any questions?

COMMENTS BY MR. WOLF

Mr. WOLF. Well, I do not, and I apologize for not being here. I stayed over on the Floor to give a one minute on the issue of Bosnia, urging that the administration lift the arms embargo. I have been in the country a number of times, and so that issue delayed me.

I understand that you have discussed the AAS, and you know the way I feel and the committee feels with regard to that.

Also, and I see your senior staff here, and they listened yesterday. You know of my concern that the FAA change some of its ways of thinking. I think the FAA does an excellent job in safety. We have the number one safety record in the world, but we need to be open to new ideas and open to people commenting and people making recommendations without being defensive about it.

People make recommendations to me everyday. Some of the best ideas I get are when people are critical and offer ideas.

So I just would have that comment and I want to welcome you here. You might want to take a look at some of the questions we asked on other issues, but I thank you and apologize, Mr. Chairman, for not being here earlier.

I yield back.

Mr. CARR. Mr. Coleman.

COMMENTS BY MR. COLEMAN

Mr. COLEMAN. I would like to welcome some of our friends, Mr. Chairman.

I apologize for not being able to be here earlier. I was attending two other committee meetings. I do not have any specific questions of this panel. However, I would like to thank Ms. Daschle for joining us today.

Mr. CARR. Mr. Wolf.

TELECOMMUTING CENTERS

Mr. WOLF. I have one other question that I did not raise with Mr. Hinson yesterday.

I offered an amendment last year, and previous years, with regard to family friendly policies. We have developed policies such as flexi-time, flexi-place, job sharing—I can't take credit for the flexi-time, I think Mrs. Schroeder and others were really the leaders there—but we have worked on leave sharing.

It was my legislation concerning donated leavetime from fellow workers if a Federal employee is dying of cancer or has a heart transplant. The goal was to make the government a family friendly place. Because the American family is under more pressure today than at any other time in the history of our country.

Every indicator with regard to the well-being of the family is evident today: Child abuse, spouse abuse, teen suicide, teen pregnancy. It is out of control.

The only group that does not have an official lobby here in town is the American family. I think the Bush Administration missed a great opportunity. This Administration has missed a great oppor-

tunity to increase the special exemption for children and to do other things.

Now, what does this have to do with what I want to ask you? I introduced an amendment, which was accepted in my other appropriation subcommittee, to set up a telecommuting center. We now have the first telecommuting center in the country in my congressional district.

There are 5,000 people that live in Winchester or within 15 minutes of Winchester. Mr. Hoyer, who has been very good on these issues, also set up one down in St. Mary's County.

We are finding great resistance on the part of managers to this. We have had several FAA employees ask for the opportunity to work out of the Winchester telecommuting center. I was told it is kind of like this: Secretary Pêna is very good on these issues of flex-time, flexi-place, child care, leave sharing, whereby parents have more time to spend with their family. But if you commute from the Shenandoah Valley—and I have come across two different cases in the last week: One woman who lives in New Market, gets up and drives to Woodstock at 5 o'clock in the morning, gets in a van pool with a pillow and comes into the Department of Energy.

Another lady that I met the other night said that she gets up at 4:30 in the morning and leaves at 5:00 from Berryville to come in to work downtown.

A lot of your people at FAA work and live in that community. Clearly, an air traffic controller cannot telecommute. If you can go back and be sensitive to make sure that the FAA is open to this. And I am not suggesting by this question that you are not. I was told on Monday that the FAA was looking at it carefully. If you could just make sure that the Federal managers under you are sympathetic to allowing your people, who have the type of jobs to be permitted to do it, to participate in this telecommuting center.

Telecommuting increases productivity. Clearly, if you are on the road for two-and-a-half hours in the morning and two-and-a-half hours in the evening, you are just not that sharp. Whereas if you can, one or two days, go in to a telecommuting center, wherever it may be. But because of the Secretary's positive feelings about this, it would be helpful, particularly since you are such a large player in my area, to have the FAA participate.

There are one or two other agencies I am going to contact the Secretary about. I have one agency in DOT, I understand they are not letting the people participate and yet here is the Secretary, who has young kids, who is very sympathetic. But if you could look at it and make sure the FAA participates, I would appreciate it very, very much and these families would be appreciative.

Ms. DASCHLE. I will absolutely look at it, Congressman Wolf, and keep you apprised of the developments in that area. I know that in the Los Angeles area out of necessity, we had to do telecommuting. I believe we have found thus far that it is an effective way to do business. But I will keep you apprised.

Mr. WOLF. Good, I thank you.

Thank you, Mr. Chairman, I am sorry.

CLOSING REMARKS

Mr. CARR. Well, with that, I do not have any more questions. We may propose a few questions to you on a couple of things in addition to the list that has been prepared and will be handed to you as you leave the room, I presume. Some questions on the TACAN question that you and I have talked about before.

But with that, I want to thank you for your participation, nice to have you here, and we will adjourn this meeting of the subcommittee.

Ms. DASCHLE. Thank you, Mr. Chairman.

NTSB REPORT ON N82 ACCIDENT

Mr. CARR. In view of the recent NTSB report regarding accident of N82, why are procedure specialists being removed from active flight status? The NTSB report does not recommend this but rather recommends providing better methods of maintaining currency for these specialists.

[The information follows:]

The NTSB has recommended a full-time professional pilot workforce reporting to a common supervisor. In order to accomplish this, we are establishing flight inspection units composed of full-time pilots. The position descriptions of pilots assigned to flight inspection units do not include procedures development duties.

CONSOLIDATION OF FLIGHT INSPECTION OPERATIONS

Mr. CARR. As I understand it, the international flight inspection operations are being consolidated. Why are these functions being transferred to Oklahoma City rather than sites closer to Asian and European locations?

[The information follows:]

In reviewing our options, several locations were considered for establishing an FAA International Flight Inspection Office in the United States. Based on operational requirements, personnel, training availability, and existing facilities it was determined establishing the international office in Oklahoma City, Oklahoma, was the most cost effective option.

RENTAL SPACE FOR FLIGHT INSPECTION

Mr. CARR. Is it true that there is not current office space available in Oklahoma City at the Monroney Center and the FAA will seek to rent additional space? Is there office space available at other area offices?

[The information follows:]

This is not true. Adequate facilities are presently available at the Mike Monroney Aeronautical Center (MMAC) in Oklahoma City, Oklahoma. Utilizing present facilities at the MMAC is the most cost effective option to support operational requirements. Presently, the other area offices do not have space available to accommodate the additional requirements.

CONTROLLING OBSTACLE VERIFICATION CHECKS

Mr. CARR. Are controlling obstacle verification checks being done currently at all flight inspection area offices. If not, why not? These checks in the past have at times been done economically with rented light twin aircraft. Why is this no longer done?

[The information follows:]

Controlling obstacle verification checks are presently being accomplished by all flight inspection area offices.

The use of light twin aircraft to accomplish all obstacle verification checks is not economically feasible. When facilities are evaluated to ensure they support instrument approach procedure design, the flight inspection aircraft completes the obstacle verification checks at the same time. This significantly reduces the necessity for separate obstacle verification flights.

FLIGHT STATUS OF PROCEDURES PILOTS

Mr. CARR. In the reorganization plan, the FAA will apparently attempt to move procedures pilots from flight status and move the procedures function to Oklahoma City. Is it wise to have those who design instrument approaches to not have actually flown the approach and, in fact, not even necessarily be an active pilot?

[The information follows:]

Development of procedures by non-pilots is not a new concept. For the past 13 years, a mixture of pilots and non-pilots have been developing instrument procedures. Non-pilots are required to have aeronautical background experience gained as a pilot, air traffic controller, or similar discipline from the military doing actual procedure development. Qualified and trained Airspace System Inspection Pilots (ASIP) from the respective flight inspection area offices will continue to evaluate and fly all instrument flight procedures. These ASIPs will be familiar with the procedures, terrain features, navigational aids, and other considerations affecting the overall quality of our procedures products. As long as we have the procedure certified by a current and qualified ASIP, the fact that the specialist who developed the procedure is not a pilot is not an issue.

STAFFING LEVELS OF PROCEDURE SPECIALISTS

Mr. CARR. With GPS technology coming on line over the next few years, are staffing levels of procedure specialists adequate to test the many additional approaches?

[The information follows:]

Workload associated with GPS and other new technology can be accommodated within current staffing levels. By centralizing procedures, a 35 percent increase in capacity will be available.

FEASIBILITY OF PART-TIME AFSS

Mr. CARR. Is the FAA conducting a study of the feasibility of part-timing some automated flight service stations during late night or early morning hours? Could this present a problem with adequate "area knowledge" a flight service specialist should have about the geography and airspace where they brief? How would you be able to off-load calls to knowledgeable specialists?

[The information follows:]

A study is being conducted by the FAA for the purpose of determining the feasibility of establishing a program to reduce staffing levels at selected automated flight service station (AFSS) facilities during hours of low activity, normally between the hours of 9:00 p.m. and 6:00 a.m. at most locations. Flight service specialists currently provide pilot weather briefings on a national scope and conditions would not change if calls were transferred to adjacent facilities during periods of low activity. A draft order governing the transfer of 1-800-WX-BRIEF calls is now in the field for comment. The order will contain and provide all the necessary information needed to effectively transfer calls between those facilities when a need of off-loading becomes apparent.

SLIPPAGE OF TACAN PROCUREMENT

Mr. CARR. Is the FAA confident that further slippage in the TACAN procurement will not result in higher costs for the 203 antennas slated to be replaced?

[The information follows:]

Yes, we are confident of this as the TACAN antenna contract is firm-fixed price. There have been no changes to the requirements which would increase costs.

CHANGES IN SPECIFICATIONS ON TACAN PROCUREMENT

Mr. CARR. Please detail any changes in the specifications that the FAA has permitted on the TACAN procurement.

[The information follows:]

CHANGES MADE AND APPROVED IN THE TACAN CONTRACT

1. Change the internal identity tone from sine wave to square wave for equipment compatibility.

2. Removed the requirement for a lightning rod. There is no way to ground the lightning rod when the antenna is mounted on a VORTAC site.

3. Relaxed the requirements on harmonics and inrush current on the input alternating current power supply. The original requirements were too stringent for this type of installation. It is now in line with the current FAA power requirements.

4. Increased the electromagnetic interference (EMI) thresholds slightly above the military specification, but well within the Federal Communications Commission (FCC) requirements.

SPECIFICATION CHANGES UNDER CONSIDERATION

1. Increase allowed power consumption from 300 watts to 400 watts. This is still within the battery backup capability.

2. Increase the "cone-of-silence" directly above the TACAN antenna for the fine course modulation. This is a design trade-off with this antenna design that provides greater signal strength in the main lobe and much less undesired signal below the horizon which will decrease site sensitivity. DOD is reviewing this proposed change.

RETEST TIME FOR TACAN

Mr. CARR. Has the time for retesting of this equipment now slipped to October?

[The information follows:]

Yes, the antenna will be shipped to the FAA Technical Center in October for retesting integration and operational tests.

IMPACT OF FAILING TACAN OPERATIONAL RETEST

Mr. CARR. What will happen in the event the equipment again fails its operational tests at that time?

[The information follows:]

If the equipment fails again, the contract will be terminated. A determination will be made at that time if it is feasible to pursue another procurement. There are no current nor future funds budgeted for TACAN antennas.

AIR FORCE INVOLVEMENT WITH TACAN TESTING

Mr. CARR. Is the Air Force being consulted on these tests as to whether they find the equipment acceptable?

[The information follows:]

Yes, the Air Force is participating in meetings on the TACAN antenna status and preliminary test results. They have been invited to observe the testing at the FAA Technical Center.

PHOENIX SKYHARBOR AIRPORT—THIRD RUNWAY

Mr. PASTOR. Mr. Hinson, after decades of controversy over the addition of a third runway at the Phoenix Skyharbor International Airport, the cities of Phoenix and Tempe have entered into a letter of intent to allow the construction of the runway. The agreement incorporates the current Federal Aviation Administration (FAA) flight procedures, as well as those the FAA has committed to use in the future. Of primary importance are noise mitigation flight procedures, which both Phoenix and Tempe have asked be made permanent.

Last month, you wrote the mayors of Phoenix and Tempe applauding their achievement and stating the FAA's intention to continue to use the noise mitigation flight procedures, but failed to provide the long-term assurances the agreement depends on. As you may know, pending resolution of this matter, the city of Tempe has filed suit in the Ninth Circuit Court of Appeals in San Francisco.

Please outline what steps the FAA is taking to bring this matter to a resolution. Has the FAA given consideration to the fact that a delay in expansion of the airport could have a deleterious impact on one of the fastest growing regions of the country?

[The information follows:]

Counsel for the FAA and the City of Tempe met recently to discuss the letter of intent and explore potential means for reaching a solution equitable to all parties. At Tempe's request, the Ninth Circuit has included this case in the settlement conference program. Through this program, a settlement conference attorney assigned by the Court will schedule periodic teleconferences and meetings with the parties to facilitate settlement.

Turning to the substance of the letter of intent, as I indicated in my March 11 letter the FAA made these noise mitigation flight procedures a condition of approval of the expansion project in the record of decision. A considerable degree of permanence is assured here because there is community consensus. As a matter of aviation noise abatement policy, the FAA is unlikely to propose to change these procedures in these circumstances to alleviate capacity constraints.

Although proposed changes are unlikely, I have serious policy and legal concerns about binding future Administrations not to exercise their lawful authority to make air traffic changes to assure safe and efficient utilization of the navigable airspace. It would be unprecedented for a government agency to renounce the flexibility to respond to changed circumstances.

I am also concerned about the provisions of the letter of intent which call for enforcement of flight procedures by Phoenix on a mandatory basis. As a matter of aviation policy, local enforcement could interfere with the ability of the FAA to make independent safety and efficiency determinations and of the pilot-in-command to make safety judgments. The Federal courts have generally viewed local flight procedures and local enforcement of such procedures as precluded by the doctrine of Federal preemption. This is particularly true where the local rules are more stringent than applicable Federal requirements. I am hopeful that as a result of the discussions between Counsel for the parties these concerns will be addressed and we will achieve some progress to resolve this issue. Tempe recently proposed revisions to the FAA January 18, Record of Decision which are being reviewed.

Settlement discussions should not delay construction, which will not begin for a year to two years. Phoenix must first complete a data recovery program for archeological artifacts pursuant to a Memoranda of Agreement with the Advisory Council on Historic Preservation and relocate the Air National Guard.

Mr. SKEEN. Would you update the Committee on the status of constructing a stand-alone radar facility at the Roswell Industrial Air Center?

[The information follows:]

The Report to Congress that was directed by the 1994 Department of Transportation Appropriations Act concerning radar coverage to the Roswell area was finalized and forwarded to Congress on April 21, 1994. Since the FAA decision is to build a stand-alone TRACON at Roswell, NM, actions are in progress to initiate an engineering design review for the new TRACON. This is in addition to the design review that is fifty percent complete for the control tower, covered under a separate budget item.

The current plan will allow for completion and operational utilization of the Roswell facilities in the second quarter of 1998.

Mr. SKEEN. To date, what has been obligated to this project, and what is the remaining balance needed to complete this radar facility? Please indicate the anticipated time frame for completion, broken down by fiscal year.

[The information follows:]

The total cost to establish the Roswell, NM ASR-9 radar facility is \$19 million. To date, \$9.35 million has been obligated to this project and no additional funding is required to complete this radar facility. Prior to radar delivery, all necessary site preparations must be completed. ASR-9 site preparation will be completed and the radar will be delivered in fiscal year 1995.

ROSWELL, NM, RADAR FUNDING

Mr. SKEEN. Does the administration's fiscal year 1995 request include funding for the Roswell Radar? If so, please provide the anticipated funding level and a breakdown by function for fiscal year 1995.

[The information follows:]

The funding was provided in fiscal year 1993 and no additional funding is required for the Roswell, NM ASR-9 radar.

[The justifications follow:]



U.S. Department of
Transportation

BUDGET ESTIMATES FISCAL YEAR 1995

**FEDERAL AVIATION
ADMINISTRATION**

SUBMITTED FOR USE OF
THE COMMITTEES ON APPROPRIATIONS

FEDERAL AVIATION ADMINISTRATION
Congressional Justification of Estimates of Appropriations
for Fiscal Year 1995

Table of Contents

ITEM

Justification and Schedules at Administration Level:

Organization Chart.....	GEN-1
General Statement.....	GEN-2
Summary of Budget Estimates for Fiscal Year 1995 BA.....	GEN-7
Summary of Budget Estimates for Fiscal Year 1995 Program Level.....	GEN-8
Summary of Budget Estimates for Fiscal Year 1995 Outlays.....	GEN-9
Resource Summary -FTE.....	GEN-10
Summary of Authorized Positions.....	GEN-11
End of Year Employment.....	GEN-12
Drug-Related Budget Estimates.....	GEN-13

Justification and Schedules at Appropriation Levels:

General Funds:

Operations

Language.....	OPS-1
Program and Financing Schedule.....	OPS-2
Program and Performance.....	OPS-5
Object Classification Schedule.....	OPS-6
Personnel and Resource Summary.....	OPS-9
Overview of Operations Budget.....	OPS-10
Summary of Program Requirements.....	OPS-11
Buildup of the FY 1995 Operations Budget.....	OPS-12
FY 1995 Non-Discretionary Increases and Program Reductions.....	OPS-13
Summary of Appropriation Requirements by Major Activity.....	OPS-16
Summary of Appropriation Requirements by Object Class.....	OPS-17

Justification by Activities:

Operation of Traffic Control System.....	OPS-19
NAS Logistics Support.....	OPS-35
Maintenance of Traffic Control System.....	OPS-47
Leased Telecommunications Services.....	OPS-73
Aviation Regulation and Certification.....	OPS-83

ITEM

Aviation Standards.....	OPS-97
Civil Aviation Security.....	OPS-117
NAS Design and Management	OPS-127
Administration of Airport Program.....	OPS-135
Direction, Staff and Supporting Services.....	OPS-143
Human Resources Management	OPS-151
Headquarters Administration.....	OPS-165

Miscellaneous Expired Accounts:

Program and Financing Schedule.....	MEA-1
Language.....	MEA-2

Aircraft Purchase Loan Guarantee Program:

Language.....	APLG-1
Program and Financing Schedule.....	APLG-2
Status of Guarantee Loans	APLG-3
Object Classification	APLG-3

Public Enterprise Funds:

Aviation Insurance Revolving Fund:

Language.....	AIRF-1
Program and Financing Schedule.....	AIRF-2
Revenue and Expense, Financial Condition and Analysis of Government Equity	AIRF-4
Object Classification Schedule.....	AIRF-6
Personnel Summary	AIRF-6

Trust Funds:

Airport and Airway Trust Fund:

Amounts Available for Appropriation.....	AATF-1
Fund Status	AATF-2

Grants-in-Aid for Airports (Airport and Airway Trust Fund):

Language.....	AIP-1
Program and Financing Schedule.....	AIP-2
Status of Contract Authority	AIP-3

ITEM

Summary of Budget Authority and Outlays	AIP-6
General Justification	AIP-7
Funds Allocated by Work Increments	AIP-12
Federal Funds Allocated by Airport type	AIP-13
Program Level Summary	AIP-14
Outlays and Liquidating Cash	AIP-15
Letter of Intent Commitments	AIP-16
Passenger Facility Charge	AIP-21

Facilities and Equipment (Airport and Airway Trust Fund)

Language	F&E-i
Program and Financing Schedule	F&E-ii
Financing and Outlays Schedule	F&E-iii
Summary of Budget Authority and Outlays	F&E-iv
Object Classification Schedule	F&E-v
Personnel Summary	F&E-vi
General Justification	F&E-viii

Justification by Activities:

Engineering, Development, Test, and Evaluation	F&E-1
Air Traffic Control Facilities and Equipment	F&E-24
Non-Air Traffic Control Facilities and Equipment	F&E-155
Mission Support	F&E-188
Personnel and Related Expenses	F&E-205

Research, Engineering and Development:

Language	RED-1
Program and Financing Schedule	RED-2
Program and Performance	RED-4
Object Classification Schedule	RED-5
Personnel Summary	RED-6
Introduction to the Research, Engineering & Development Program	RED-7
Comparative Summary of Appropriation	RED-25

Justification by Activities:

Management and Infrastructure	RED-28
Capacity of Air Traffic Management	RED-30
Communications	RED-48
Weather	RED-54

ITEM

Airport Technology.....	RED-56
Aircraft Safety Technology	RED-58
System Security Technology	RED-72
Human Factors and Aviation Medicine.....	RED-80
Environment and Energy	RED-92
Innovative/Cooperative Research	RED-94

Operations (Trust Fund Share):

Program and Financing Schedule.....	TFOPS-1
Program and Performance	TFOPS-2

Exhibits:

Operations - Obligations by Object Classification and by Activity	EX-1
Permanent Change of Station	EX-6
Federal Aviation Administration Technical Center	EX-7
Aeronautical Center Program	EX-8
Energy Conservation	EX-12
Language-General - Provisions	EX-14
Glossary of Abbreviations Appearing in Justification	EX-16

Proposed Rescission:

Operations - Program and Financing	RES-1
Grants-in-Aid for Airports.....	RES-3
Facilities and Equipment	RES-5

973



GEN-1

FEDERAL AVIATION ADMINISTRATION

GENERAL STATEMENT

Legislative Authority

The Federal Aviation Administration (FAA) is an operating administration within the Department of Transportation pursuant to the Department of Transportation Act, Public Law 89-670.

The FAA provides aeronautical services under authority of several statutes, including:

1. The Federal Aviation Act of 1958, as amended, which created the Federal Aviation Agency, provides for the promotion and regulation of civil aviation in order to assure the safe and efficient use of the Nation's airspace by civil and military aircraft.
2. The International Aviation Facilities Act, as amended, which was enacted to encourage the development of an international air transportation system adapted to the needs of the foreign commerce of the United States, the postal service, and the national defense.
3. The Airport and Airway Improvement Act of 1982, as amended, which was enacted to continue the program of federal assistance for airport improvements. The Administration is proposing legislation to continue this program.

The reauthorization bill pending before Congress is a 4-year program, FY 1994 through FY 1997. The Facilities and Equipment program funding proposal ranges from \$2.9 to \$2.5 billion per year for a 4-year total of \$10.8 billion. The Airport Improvement Program is \$1.69 billion to \$1.89 billion for a 4-year total of \$7.06 billion. The bill proposes to continue aviation user fees at current levels through calendar year 1997 and to finance 75 percent of FAA's budget from the Airport and Airway Trust Fund.

The declaration of policy for the Administration, set forth in section 103 of the Federal Aviation Act, summarizes effectively the objectives we wish to attain. It states that --

In the exercise and performance of his powers and duties under this Act, the Administrator shall consider the following, among other things, as being in the public interest:

- (1) The regulation of air commerce in such manner as to best promote development and safety and fulfill the requirements of national defense.

- (2) The promotion, encouragement, and development of civil aeronautics.
- (3) The control of the use of the navigable air space of the United States and the regulation of both civil and military operations in such air space in the interest of the safety and efficiency of both.
- (4) The consolidation of research and development with respect to air navigation facilities, as well as the installation and operation thereof.
- (5) The development and operation of a common system of air traffic control and navigation for military and civil aircraft.

Basic Programs

To achieve the objectives set forth in the basis statutes summarized above, FAA conducts the following basic programs:

- 1. Regulates air commerce to insure safety through the development, promulgation and administration of safety and medical standards, and regulations that govern airmen, aircraft, aeronautical operations and related ground support activities; monitors aeronautical activities to assure adherence to regulations and to determine necessary changes in regulations; and prosecutes enforcement actions against those who violate regulations.
- 2. Assures the safe and efficient movement of air traffic by furnishing preflight and in-flight assistance to pilots; by providing air navigation services for access to the airway system, and guidance in the approach and landing phases of flight; and by controlling the separation of flight in the en route and terminal areas.
- 3. Assists in the development of public-use airports by making grants-in-aid to localities for airport planning and improvements.
- 4. Carries out other activities designed to facilitate and promote the development of safe and efficient air commerce.

Aviation Industry Indicators

The workload of the FAA is generated by the activity of all segments of the aeronautical community. Aviation activity is expected to increase in FY 1995, as demonstrated by the following indicators.

	<u>Fiscal Year 1995</u>	
	<u>Amount</u>	<u>Percent Change</u>
Aviation fuel consumption (billions of gallons)	17.8	+4.1
Revenue passenger miles (billions)	534.1	+5.2
General aviation hours flown (millions)	26.3	+ .8
IFR aircraft handles (millions) at Air Route Traffic Control Centers	38.6	+1.8
Total operations at airports with FAA towers (millions)	61.8	+1.5
IFR operations handled by FAA towers (millions)	47.0	+1.7

1995 Overview

The fiscal year 1995 proposes \$8,806.9 million in budget resources for the Federal Aviation Administration, an increase of \$162.2 million (+1.9 percent) over the \$8,644.8 million FY 1994 enacted level. Again 75 percent of the FAA's funding request would be financed through user fees paid into the Airport and Airway Trust Fund.

The FY 1995 budget for the FAA is structured around three themes: (1) reinventing government, (2) ensuring system safety, and (3) promoting the efficiency and competitiveness of U.S. aviation through increased investments in the aviation infrastructure and aviation research and development.

- Reinventing Government: The FAA is committed to streamlining its operations through reductions in overhead and support functions and staff, an organizational structure that reduces management layers, and the empowerment of its employees. These efficiencies and cost-saving initiatives offset necessary growth in safety-related areas.

- **Ensuring System Safety:** The first priority of the FAA has been and always will be safety. In order to ensure a continuing high level of system safety and in order to meet projected demand, the FY 1995 budget requests increases in the number of people responsible for aircraft and airmen certification and inspection. In addition, air traffic controllers, maintenance technicians, and security specialists will be kept at their already sufficient FY 1994 levels, except for non-safety-related reductions that can be made as a result of streamlined operations and increased reliance on contracting out certain functions to the private sector.
- **Promoting the Efficiency and Competitiveness of the U.S. Aviation System:** The ability of U.S. air carriers to increase their efficiencies at home and increase their competitiveness abroad rest in part on the infrastructure and aviation systems supporting their operations. In response, the FY 1995 budget proposes to increase our Nation's investment in aviation's infrastructure and our investment in the technologies of tomorrow. More specifically, the FY 1995 budget proposes a seven percent increase for Facilities and Equipment in support of modernizing our national airspace system and a five percent increase for Research, Engineering and Development in support of continued research into such important areas as satellite navigation, aircraft safety, and airport/air carrier security. Finally, the budget proposes to continue our current level of support for the Airport Improvement Program, which, when combined with local passenger facility charges, will promote much needed capacity improvements at our nation's airports.

Summary of Individual Appropriations

The **Operations** request of \$4,580.9 million reflects an increase of \$0.4 million in budget authority over FY 1994. The trust fund share of operations is \$2,379.2 million. This funding supports safety, security and efficiency of the national airspace system.

The **Grants-in-Aid for Airports** (Airport and Airway Trust Fund) request establishes a \$1,690.0 million obligation limitation for planning and development of the nation's airports. A \$1,500 million liquidating cash appropriation is requested to ensure that sufficient trust fund cash will be available to liquidate obligations as they become due.

The **Facilities and Equipment** (Airport and Airway Trust Fund) request totals \$2,269.1 million. This funding will continue programs which increase safety, efficiency and the capacity of the nation's airway system. About 30 percent of the FY 1995 proposal is for the Advanced Automation System (AAS) and the Voice Switching and Control System (VSCS) programs.

The **Research, Engineering and Development** (Airport and Airway Trust Fund) request is \$266.8 million. Major efforts in FY 1995 involve Air Traffic Management and Capacity Research, Terminal Air Traffic Control Automation, Oceanic Data Link, and expanded human factors initiatives.

The Aviation Insurance Revolving Fund reflects estimated revenue of approximately \$3.8 million from fees and investments in U.S. Treasury securities, and estimated expenses of \$195 thousand.

Aircraft Purchase Loan Guarantee Program. This program is continuing only for the purpose of making payments to private lenders upon defaults on existing loans by air carriers. No defaults are projected for FY 1995. The FY 1995 budget requests funds to repay borrowings and interest accrued thereon to the Treasury.

Other Items of Interest

Working Capital Fund. In FY 1995 \$33.8 million from the Operations account will finance services provided through the Department's Working Capital Fund.

Consulting Services. For FY 1995, the FAA will require approximately \$1.5 million for consulting services. Consulting services are needed for activities which would otherwise require additional Government employees.

Transit Subsidy Program. The Federal Aviation Administration has been a participant in the Department's Transit Subsidy Program since January 1992. Our Operations account funds the program. The cost of the program in FY 1993 was \$1 million; estimated cost for FY 1994 is \$1.4 million and estimated cost for FY 1995 is \$1.5 million.

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESOURCE SUMMARY-FINANCING**
(\$ in thousands)

<u>APPROPRIATION TITLE</u>	BUDGET AUTHORITY		
	1993 ACTUAL	FY 1994 ENACTED	1995 ESTIMATE
Operations	\$4,530,000	\$4,580,518	\$4,580,900
(General)	2,250,679	2,286,018	2,201,700
(Trust)	2,279,321	2,294,500	2,379,200
Proposed Rescission 1/		(2,750)	
Aircraft Purchase Loan Guarantee Program	9	150	148
Grants-in-Aid Airports (Trust)			
(New Contract Authority) 2/	2,050,000	1,690,000	1,690,000
(Obligation Limitation) non-add	1,800,000	1,690,000	1,690,000
Proposed Rescission 3/		(488,200)	
Facilities and Equipment (Trust)	2,301,700	2,120,104	2,269,100
Proposed Rescission 4/		(40,257)	
Research, Engineering and Development (Trust)	<u>230,000</u>	<u>254,000</u>	<u>266,800</u>
TOTAL BUDGET AUTHORITY	<i>\$2,111,708</i>	<i>\$2,113,665</i>	<i>\$2,806,848</i>
(General)	2,250,688	2,283,418	2,201,848
(Trust)	6,861,021	5,830,147	6,605,100
LIQUIDATING CASH APPROPRIATIONS:			
Grants-in-Aid- for Airports	\$2,100,000	\$2,200,000	\$1,500,000
Propriety Receipts			
Miscellaneous Recoveries & Refunds	\$492	\$1,028	\$1,028

1/ \$2 million FY 1994 subsidy to the Mid-American Aviation Resource Consortium (MARC) in Minnesota; \$750 thousand in FY 1994 for grants to vocational institutions.

2/ Assumes pending reauthorization will reflect President's requested levels.

3/ Amount in excess of funds made available for obligation in P. L. 103-122.

4/ Unobligated balances in the Airway Sciences Program.

GEN-7

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESOURCE SUMMARY-FINANCING**
(\$ in thousands)

<u>APPROPRIATION TITLE</u>	<u>PROGRAM LEVEL</u>		
	<u>1993 ACTUAL</u>	<u>1994 ENACTED</u>	<u>1995 ESTIMATE</u>
Operations	\$4,530,709	\$4,581,434	\$4,580,900
(General)	2,251,388	2,286,934	2,201,700
(Trust)	2,279,321	2,294,500	2,379,200
Proposed Rescission		(2,750)	
Aviation Insurance Revolving Fund	252	195	195
Aircraft Purchase Loan Guarantee Program	9	150	148
Miscellaneous Expired Accounts	145	507	0
Grants-in-Aid Airports (Trust)	1,730,413	1,690,000	1,690,000
Facilities and Equipment (Trust)	2,490,743	2,780,000	2,490,000
Proposed Rescission		(40,257)	
Research, Engineering and Development (Trust)	<u>228,468</u>	<u>271,831</u>	<u>266,800</u>
TOTAL PROGRAM LEVEL	<i>\$8,980,739</i>	<i>\$9,281,110</i>	<i>\$9,028,043</i>
(General)	2,251,794	2,285,036	2,202,043
(Trust)	6,728,945	6,996,074	6,826,000
LIMITATION ON NOTES:			
Aircraft Purchase Loan Guarantee Defaults	\$9,970	\$9,970	\$9,970

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESOURCE SUMMARY-FINANCING
(\$ in thousands)

<u>APPROPRIATION TITLE</u>	<u>OUTLAYS</u>		
	<u>1993 ACTUAL</u>	<u>1994 ENACTED</u>	<u>1995 ESTIMATE</u>
Operations	\$4,491,805	\$4,589,820	\$4,580,830
(General)	2,212,492	2,295,320	2,201,630
(Trust)	2,279,313	2,294,500	2,379,200
Proposed Rescission		(2,420)	(330)
Aviation Insurance Revolving Fund	(1,786)	(3,600)	(3,600)
Aircraft Purchase Loan Guarantee Program	36	151	148
Miscellaneous Expired Accounts	0	1,869	0
Grants-in-Aid Airports(Trust) (Contract Authority)	1,931,239	1,850,200	1,709,900
Facilities and Equipment (Trust) Proposed Rescission	2,166,371	2,023,151 (8,051)	2,103,062 (9,662)
Research, Engineering and Development (Trust)	<u>212,312</u>	<u>266,600</u>	<u>278,300</u>
TOTAL OUTLAYS	<i>\$8,799,977</i>	<i>\$8,717,720</i>	<i>\$8,658,648</i>
(General)	2,210,742	2,291,320	2,197,848
(Trust)	6,589,235	6,426,400	6,460,800
Propriety Receipts:			
Miscellaneous Recoveries & Receipts	(\$492)	(\$1,028)	(\$1,028)
LIMITATION ON NOTES:			
Aircraft Purchase Loan Guarantee Defaults	\$9,970	\$9,970	\$9,970

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESOURCE SUMMARY-FINANCING

<u>DIRECT FUNDED, BY APPROPRIATION</u>	<u>FTE-TOTAL</u>		
	<u>FY 1993 ACTUAL</u>	<u>FY 1994 ESTIMATED</u>	<u>FY 1995 ESTIMATED</u>
Operations	49,781	48,826	47,706
Facilities and Equipment	2,170	2,300	2,300
Research, Engineering and Development	729	711	711
Aviation Insurance Revolving Fund	2	2	2
Subtotal	<u>52,682</u>	<u>51,839</u>	<u>50,719</u>
<u>REIMBURSEMENTS/ALLOCATIONS</u>			
Operations	407	390	353
Facilities and Equipment	53	55	55
Research, Engineering and Development	6	6	6
SUBTOTAL, REIMBURSEMENTS/ALLOCATIONS	<u>466</u>	<u>451</u>	<u>414</u>
TOTAL, FTE	<u>53,148</u>	<u>52,290</u>	<u>51,133</u>
FTE-FTP	<u>52,109</u>	<u>51,238</u>	<u>50,081</u>
FTE-DTFTP	<u>1,039</u>	<u>1,052</u>	<u>1,052</u>

GEN-10

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESOURCE SUMMARY-STAFFING**

	POSITIONS (FULL-TIME PERMANENT)		
<i><u>DIRECT FUNDED, BY APPROPRIATION</u></i>	FY 1993 ACTUAL	FY 1994 ENACTED	FY 1995 ESTIMATE
Operations	52,251	50,813	49,541
Facilities and Equipment	2,504	2,504	2,504
Research, Engineering and Development	645	645	645
Aviation Insurance Revolving Fund	2	2	2
Subtotal, Direct Funded	<u>55,402</u>	<u>53,964</u>	<u>52,692</u>
<i><u>REIMBURSEMENTS/ALLOCATIONS</u></i>			
Operations	490	390	390
Facilities and Equipment	53	55	55
Research, Engineering and Development	6	6	6
Subtotal, Reimbursements	<u>549</u>	<u>451</u>	<u>451</u>
TOTAL, POSITIONS	<u>55,951</u>	<u>54,415</u>	<u>53,143</u>
Allocations to Other Agencies	0	0	0

GEN-11

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESOURCE SUMMARY-STAFFING

**END-OF-YEAR EMPLOYMENT
(IN FULL-TIME PERMANENT POSITIONS)**

DIRECT FUNDED, BY APPROPRIATION

	FY 1993 ACTUAL	FY 1994 ESTIMATE	FY 1995 ESTIMATE
Operations	48,265	46,798	46,275
Facilities and Equipment	2,270	2,450	2,450
Research, Engineering and Development	639	636	636
Aviation Insurance Revolving Fund	3	2	2
Subtotal, Direct Funded	<u>51,177</u>	<u>49,886</u>	<u>49,363</u>

REIMBURSEMENTS/ALLOCATIONS

Operations	404	390	353
Facilities and Equipment	52	55	55
Research, Engineering and Development	6	6	6
Subtotal, Reimbursements	<u>462</u>	<u>451</u>	<u>414</u>
TOTAL, END-OF-YEAR EMPLOYMENT	<u><u>51,639</u></u>	<u><u>50,337</u></u>	<u><u>49,777</u></u>

DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 FY 1995 CONGRESSIONAL SUBMISSION
 DRUG-RELATED BUDGET ESTIMATES

(\$000)

APPROPRIATION	FY 1993 Actual			FY 1994 Estimate			FY 1995 Request		
	POS	FTE	\$	POS	FTE	\$	POS	FTE	\$
OPERATIONS:									
Air Traffic, FSS	56	53	5,224	55	53	5,383	56	53	5,528
Aviation Standards, Med.	111	79	7,808	102	75	5,990	102	75	6,590
Aviation Standards, RSA	109	45	1,643	94	44	1,733	97	55	2,034
Civil Aviation Security	26	20	1,320	27	26	1,546	20	19	1,320
TOTAL OPERATIONS	302	197	15,995	278	198	14,652	275	202	15,472
FACILITIES & EQUIPMENT:									
Renovation of Airmen and Aircraft Reporting System	0	0	4,000	0	0	9,100	0	0	0
RESEARCH, ENGINEERING AND DEVELOPMENT	7	7	1,015	7	7	1,036	7	7	1,036
TOTAL, ALL APPROPS.	309	204	21,010	285	205	24,788	282	209	16,508

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

OPERATIONS

For necessary expenses of the Federal Aviation Administration, not otherwise provided for, including administrative expenses for research and development, establishment of air navigation facilities and the operation (including leasing) and maintenance of aircraft, and carrying out the provisions of the Airport and Airway [Development Act,] Improvement Act of 1982, as amended, or other provisions of law authorizing the obligation of funds for similar programs of airport and airway development or improvement, lease or purchase of four passenger motor vehicles for replacement only, [\$4,580,518,000] \$4,580,900,000, of which [\$2,294,500,000] \$2,379,200,000 shall be derived from the Airport and Airway Trust Fund: Provided, That there may be credited to this appropriation funds received from States, counties, municipalities, foreign authorities, other public authorities, and private sources, for expenses incurred in the provision of aviation services, including the maintenance and operation of air navigation facilities and for issuance, renewal or modification of certificates, including airman, aircraft, and repair station certificates, or for tests related thereto, or for processing major repair or alteration forms: Provided further, That, of the funds available under this head, \$2,000,000 shall be made available for the Mid-American Aviation Resource Consortium in Minnesota to operate an air traffic controller training program:] Provided further, That funds may be used to enter into a grant agreement with a nonprofit standard setting organization to assist in the development of aviation safety standards: Provided further, That none of the funds provided shall be made available for pay raises or bonuses in fiscal year 1994 for Federal Aviation Administration employees whose responsibilities include noise abatement policy function, managing aircraft route design or changes, and responsibility for preparing, managing, and overseeing the environmental impact statement mandated by section 9119 of Public Law 101-508, until the final report on such impact statement is issued:] Provided further, That none of these funds shall be available for new applicants for the second career training program. (Department of Transportation and Related Agencies Appropriations Act, 1994.)

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION

Program and Financing (in thousands of dollars)

Identification Code:		FY 1993	FY 1994	FY 1995
69-1301-0-1-402		Actual	Estimate	Estimate
Program by activities:				
Direct program:				
00.01	Operation of traffic control system	2,092,647	2,138,301	2,167,301
00.02	NAS logistics support	175,538	176,041	183,434
00.03	Maintenance of traffic control system	846,362	855,302	848,113
00.04	Leased telecommunications services	320,206	324,529	316,987
00.05	Aviation regulation and certification	335,893	347,392	359,965
00.06	Aviation standards	120,586	115,418	111,942
00.07	Civil aviation security	68,343	66,782	65,088
00.08	NAS design and management	54,398	56,628	55,745
00.09	Administration of airports	41,239	38,856	40,477
00.10	Direction, staff and supporting services	153,076	146,713	141,077
00.11	Human resource management	271,724	267,239	243,819
00.12	Headquarters administration	50,689	48,233	46,952
00.91	Total, direct program	4,530,701	4,581,434	4,580,900
01.01	Reimbursable program	51,619	58,000	59,600
10.00	Total obligations	4,582,320	4,639,434	4,640,500

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION

Program and Financing (in thousands of dollars)

Identification Code:		FY 1993	FY 1994	FY 1995
69-1301-0-1-402		Actual	Estimate	Estimate
Relation of obligations to outlays:				
71.00	Total obligations	4,582,320	4,639,434	4,640,500
72.40	Obligated balance, start of year	522,537	539,627	531,241
74.40	Obligated balance, end of year	-539,627	-531,241	-531,311
77.00	Adjustments in expired accounts	-19,368	0	0
87.00	Outlays (gross)	4,545,862	4,647,820	4,640,430
Adjustments to budget authority and outlays: Deductions for offsetting collections:				
88.00	Federal funds	-34,332	-35,993	-37,104
88.30	Trust funds	-2,279,313	-2,294,500	-2,379,200
88.40	Non-Federal sources	-19,725	-22,007	-22,496
88.90	Total, offsetting collections	-2,333,370	-2,352,500	-2,438,800
89.00	Budget authority (net)	2,250,679	2,286,018	2,201,700
90.00	Outlays (net)	2,212,492	2,295,320	2,201,630

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION

Program and Financing (in thousands of dollars)

Identification Code:		FY 1993	FY 1994	FY 1995
69-1301-0-1-402		Actual	Estimate	Estimate
Financing:				
21.40	Unobligated balance available, start of year	-916	-916	0
24.40	Unobligated balance available, end of year	916	0	0
25.00	Unobligated balance expiring	1,729	0	0
39.00	Budget authority (gross)	4,584,049	4,638,518	4,640,500
Budget authority:				
Current:				
40.00	Appropriation	2,250,679	2,286,018	2,201,700
Permanent:				
68.00	Spending authority from offsetting collections	2,333,370	2,352,500	2,438,800

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

OPERATIONS

PROGRAM AND PERFORMANCE

This account supports the operation and maintenance of a safe national aviation system. It finances the personnel and support costs of operating and maintaining the air traffic control system and ensuring the safety and security of aircraft, flight procedures, navigation aids, and airports through periodic inspections. It also supports overall policy direction and guidance.

For 1995, the budget proposes to streamline costs and staffing consistent with the President's initiative on administrative costs and Federal employment reductions, while maintaining adequate levels of safety work forces to ensure the continued safe operation of the airways.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION

Object Classification (in thousands of dollars)

Identification Code:		FY 1993	FY 1994	FY 1995
69-1301-0-1-402		Actual	Estimate	Estimate
Direct obligations:				
Personnel compensation:				
11.1	Full-time permanent	2,441,842	2,541,849	2,538,891
11.3	Other than full-time permanent	28,844	27,266	21,685
11.5	Other personnel compensation	275,560	271,731	264,847
11.8	Special personal services payments	4,964	4,975	4,592
11.9	Total personnel compensation	2,751,210	2,845,821	2,830,015
12.1	Civilian personnel benefits	678,897	683,048	710,440
13.0	Benefits for former personnel	199	1,381	1,331
21.0	Travel and transportation of persons	103,169	93,686	82,695
22.0	Transportation of things	15,179	17,323	19,363
23.2	Rental payments to others	44,933	43,038	25,195
23.3	Comm., utilities and miscellaneous charges	377,035	394,104	391,260
24.0	Printing and reproduction	12,116	9,328	9,582
25.1	Consulting services	1,954	1,505	1,543
25.2	Other services	427,240	407,650	413,281

OPS-6

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION

Object Classification (in thousands of dollars)

Identification Code:		FY 1993	FY 1994	FY 1995
69-1301-0-1-402		Actual	Estimate	Estimate
26.0	Supplies and materials	77,840	68,257	79,237
31.0	Equipment	40,230	15,480	16,123
32.0	Lands and structures	113	341	350
42.0	Insurance claims and indemnities	586	472	485
99.0	Subtotal, direct obligations	4,530,701	4,581,434	4,580,900
99.0	Reimbursable obligations	51,619	58,000	59,600
99.9	Total obligations	4,582,320	4,639,434	4,640,500
Personnel Summary				
Direct: Total compensable workyears:				
	Full-time equivalent employment	49,781	48,826	47,706
	Full-time equivalent of overtime and holiday hours	400	400	400
Reimbursable: Total compensable workyears:				
	Full-time equivalent employment	407	390	353
	Full-time equivalent of overtime and holiday hours	8	8	8

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
Summary of Budget Authority and Outlays
(in thousands of dollars)

Identification Code:	FY 1993	FY 1994	FY 1995
69-1301-0-1-402	Actual	Estimate	Estimate
Enacted/requested:			
Budget Authority	2,250,679	2,286,018	2,201,700
Outlays	2,212,492	2,295,320	2,201,630
Rescission proposal:			
Budget Authority	0	-2,750	0
Outlays	0	-2,420	-330
Total:			
Budget Authority	2,250,679	2,283,268	2,201,700
Outlays	2,212,492	2,292,900	2,201,300

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FY 1995 CONGRESSIONAL SUBMISSION
OPERATIONS APPROPRIATION

	DOLLAR RESOURCES (\$000)			STAFFING			
	PC&B	OTHER OBJECTS	TOTAL	FTP POS	FTE LEVEL *		
					TOTAL	FTP	OTFTP
FY 1993 ACTUAL	\$3,430,306	\$1,100,395	\$4,530,701	52,251	49,781	48,860	921
FY 1994 PROGRAM LEVEL	3,530,250	1,050,268	4,580,518	50,813	48,826	47,876	950
PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	46,149	21,279	67,428	(867)	(868)	(868)	0
MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE	0	38,002	38,002	0	0	0	0
PROGRAM REDUCTIONS (DISCRETIONARY)	(51,603)	(98,707)	(150,310)	(405)	(405)	(405)	0
PROGRAM INCREASES	16,990	28,272	45,262	0	153	153	0
FY 1995 REQUEST LEVEL	\$3,541,786	\$1,039,114	\$4,580,900	49,541	47,706	46,756	950

* Includes FTE's previously considered non-celling. Does not include reimbursable FTE's.

Overview to the FAA's FY 1995 Operations Budget

For FY 1995, the Administration is requesting \$4.581 billion, slightly above the level enacted for FY 1994. This budget proposes substantial increases in certification and inspection staff (up 305, or over 7 percent, from an end-of-FY 1994 level of 4,129), will maintain end-of-FY 1994 employment levels for security and airports staff, and will reduce controllers and maintenance technicians staffing slightly commensurate with contracting out the operation of low-level towers to the private sector and non-safety-related streamlining efficiencies. These reductions will have no effect on system safety. Support staff is estimated to decline by 868 through continued application of a hiring freeze, attrition and much needed buy out legislation, now pending in Congress.

Other reductions and efficiencies will be realized by terminating selected programs which we no longer need (e.g., the pay demonstration program and the federal subsidy for DUATs), reductions in management training, further cuts in travel and awards, and fewer temporary employees. At the same time, modest funding increases are being proposed to support the introduction of new NAS equipment into the field (thereby allowing the benefits of new technology to be realized expeditiously), to support increased efforts at contracting for services, and to continue our efforts in transitioning selected Department of Defense bases being closed to civilian use.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Summary of Program Requirements
FY 1995 Congressional Budget
Operations Appropriation
(Dollars in Thousands)

ACTIVITY	FY 1994 Estimate		FY 1995 Estimate		Difference	
	Positions	Amount	Positions	Amount	Positions	Amount
Operation of Traffic Control System	26,756	\$2,138,301	26,343	\$2,167,301	(413)	\$29,000
NAS Logistics Support	1,370	176,041	1,285	183,434	(85)	7,393
Maintenance of Traffic Control System	10,454	855,302	10,104	848,113	(350)	(7,189)
Leased Telecommunications Services	0	324,529	0	316,987	0	(7,542)
Aviation Regulation and Certification	5,350	347,392	5,264	359,965	(86)	12,573
Aviation Standards	1,341	115,418	1,284	111,942	(57)	(3,476)
Civil Aviation Security _1/	997	65,868	971	65,088	(26)	(778)
NAS Design and Management	588	56,428	557	55,745	(31)	(883)
Administration of Airports	522	38,856	522	40,477	0	1,621
Direction, Staff and Supporting Services	1,444	148,713	1,361	141,077	(83)	(5,636)
Human Resource Management	1,445	267,239	1,331	243,819	(114)	(23,420)
Headquarters Administration	546	48,233	519	46,952	(27)	(1,281)
TOTAL	50,813	\$4,580,518	49,541	\$4,560,900	(1,272)	\$382

_1/ FY 1994 Estimate excludes \$916,000 No-Year.

Build-Up of the FY 1995 Operations Budget
(\$ in millions)

FY 1994 Enacted	\$4,580.5
Decreases	(223.2)
Staffing Reductions	(99.1)
Reductions in Telecommunications Cost (Net)	(17.1)
Transfer of Lease Costs to F&E	(19.2) *
End Pay Demonstration Program	(15.0)
Reductions in Travel	(14.8)
Reductions in Training	(14.4)
One Less Work Day in Year	(13.0)
End Federal DUATS Subsidy	(9.0)
Reduction in Awards	(5.3)
Other Savings	(16.3)
Increases	223.6
FY 1995 Pay Raise	42.2
Annualized Cost of FY 1994 Locality Pay	30.3
NAS Hand-Off Activities	29.2
Additional Contracting Out Efforts:	
Contract Towers	8.9
Contract Maintenance	20.4
Inflation Adjustment	15.9 **
Within Grade Salary Increases	24.4
Increase in Employee Benefits	20.9
Additional Inspector/Certification Staffing	12.2
AT Grade-to-Grade Increases	10.0
Additional Permanent Change of Station Funding (to move people where they are most needed)	6.6
DOD Base Closures	2.5
Net Change	0.4
FY 1995 Request	4,580.9

* Reflects a change from that shown in the Budget in Brief to better characterize the reduction (with \$0.6 million shifted to "Other Savings".)

** Reflects a change from that shown in the Budget in Brief to combine previously shown absorptions and increases in inflation to a single net adjustment figure as now shown.

DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 FY 1995 CONGRESSIONAL BUDGET
 OPERATIONS APPROPRIATION
 SUMMARY OF CHANGES
 (Dollar Amounts in Thousands)

ACTIVITY	ANNUALIZED FTE REDUCTIONS	EARLY OUTS	ANNUALIZED FY 1994 PAYRAISE	FY 1995 PAYRAISE	WIGS/ GRADE TO GRADE INCR.	BENEFIT ADJUSTMENT
AIR TRAFFIC CONTROL	(976)	(17,559)	17,838	24,428	25,856	11,313
NAS LOGISTICS SUPPORT	(1,422)	(2,300)	589	802	433	214
SYSTEMS MAINTENANCE	(9,385)	(8,481)	5,550	7,549	3,782	3,802
LEASED TELECOMMUNICATIONS	0	0	0	0	0	0
AVIATION REGULATION & CERTIFICATION	(7,163)	0	2,879	3,643	1,898	864
AVIATION STANDARDS	(828)	(2,138)	828	851	411	866
CIVIL AVIATION SECURITY	(2,035)	0	462	630	387	1,387
NAS DESIGN & MANAGEMENT	(817)	(1,207)	323	438	147	570
ADMINISTRATION OF AIRPORTS	0	0	411	474	255	419
DIRECTION, STAFF & SUPPORTING SERVICE	(1,929)	(3,199)	731	997	616	811
HUMAN RESOURCE MANAGEMENT	(3,888)	(3,411)	760	1,683	871	716
HEADQUARTERS ADMINISTRATION	(418)	(1,272)	329	887	152	152
TOTAL, OPERATIONS APPROPRIATION	(28,868)	(39,587)	30,298	42,183	34,416	20,814

OPS-13

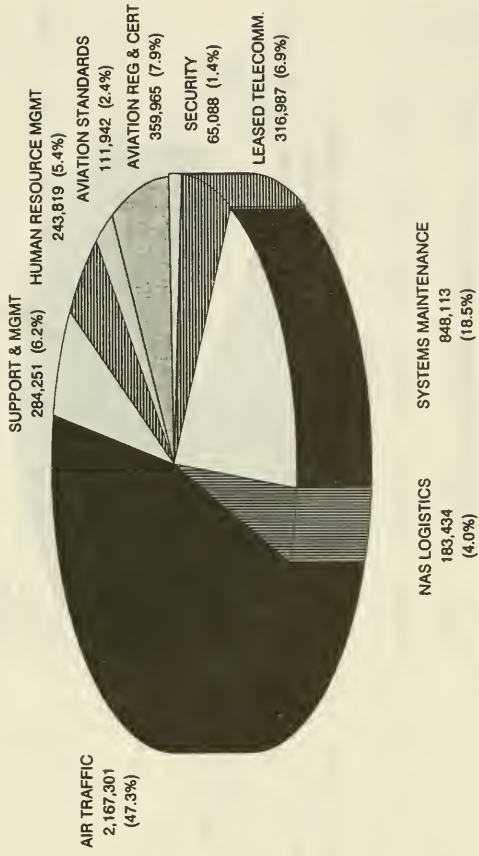
DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 FY 1995 CONGRESSIONAL BUDGET
 OPERATIONS APPROPRIATION
 SUMMARY OF CHANGES
 (Dollar Amounts in Thousands)

ACTIVITY	ONE LESS DAY	INFLATION	TOTAL NON-DISC CHANGES	ATTRITION/ STAFFING REDUCTION	PROGRAM REDUCTIONS	MANDATORY INCREASES
AIR TRAFFIC CONTROL	(7,711)	457	53,448	(16,672)	(24,676)	0
NAS LOGISTICS SUPPORT	(254)	1,823	(315)	(1,300)	(1,746)	10,754
SYSTEMS MAINTENANCE	(2,392)	3,300	3,755	(6,212)	(27,680)	21,748
LEASED TELECOMMUNICATIONS	0	7,951	7,951	0	(34,029)	4,934
AVIATION REGULATION & CERTIFICATION	(1,156)	708	1,471	(77)	(4,039)	0
AVIATION STANDARDS	(271)	448	(33)	(815)	(5,626)	3,000
CIVIL AVIATION SECURITY	(200)	203	614	0	(1,592)	0
NAS DESIGN & MANAGEMENT	(140)	211	(474)	(384)	(525)	500
ADMINISTRATION OF AIRPORTS	(100)	22	1,481	0	(202)	0
DIRECTION, STAFF & SUPPORTING SERVICE	(316)	713	(1,776)	(1,333)	(2,527)	0
HUMAN RESOURCE MANAGEMENT	(328)	263	(3,345)	(1,649)	(21,426)	3,000
HEADQUARTERS ADMINISTRATION	(142)	27	(483)	(365)	(413)	0
TOTAL, OPERATIONS APPROPRIATION	(13,010)	15,926	62,494	(30,627)	(124,483)	43,936

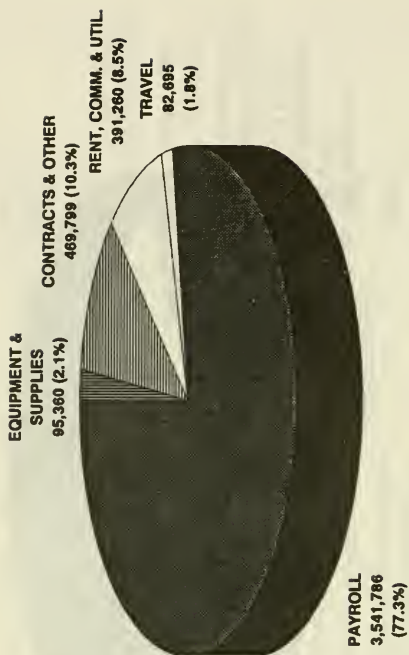
DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 FY 1995 CONGRESSIONAL BUDGET
 OPERATIONS APPROPRIATION
 SUMMARY OF CHANGES
 (Dollar Amounts in Thousands)

<u>ACTIVITY</u>	<u>PROGRAM INCREASES</u>	<u>TOTAL CHANGE FROM FY 94</u>
AIR TRAFFIC CONTROL	16,900	29,000
NAS LOGISTICS SUPPORT	0	7,393
SYSTEMS MAINTENANCE	3,200	(7,189)
LEASED TELECOMMUNICATIONS	13,902	(7,542)
AVIATION REGULATION & CERTIFICATION	15,216	12,573
AVIATION STANDARDS	0	(3,476)
CIVIL AVIATION SECURITY	0	(778)
NAS DESIGN & MANAGEMENT	0	(883)
ADMINISTRATION OF AIRPORTS	342	1,821
DIRECTION, STAFF & SUPPORTING SERVICE	0	(5,836)
HUMAN RESOURCE MANAGEMENT	0	(23,420)
HEADQUARTERS ADMINISTRATION	0	(1,281)
TOTAL, OPERATIONS APPROPRIATION	49,282	362

OPERATIONS APPROPRIATION
FY 1995 BUDGET BY MAJOR ACTIVITY
(Dollars in Thousands)



**OPERATIONS APPROPRIATION
FY 1995 BUDGET MAJOR OBJECT CLASS
(Dollars in Thousands)**



DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 OPERATIONS APPROPRIATION
 FY 1995 CONGRESSIONAL SUBMISSION
 AIR TRAFFIC

	DOLLAR RESOURCES (\$000)			STAFFING		
	PC&B	OTHER OBJECTS	TOTAL	FTP POS	FTE LEVEL	
					TOTAL	OT/TP
FY 1993 ACTUAL	\$1,959,951	\$132,696	\$2,092,647	27,386	26,812	26,612 200
FY 1994 PROGRAM LEVEL	2,018,602	119,699	2,138,301	26,756	26,161	25,798 363
PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	53,069	379	53,448	(209)	(209)	(209) 0
MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE	0	0	0	0	0	0 0
PROGRAM REDUCTIONS (DISCRETIONARY)	(30,793)	(5,555)	(36,348)	(204)	(204)	(204) 0
PROGRAM INCREASES	4,000	7,900	11,900	0	0	0 0
FY 1995 REQUEST LEVEL	\$2,044,878	\$122,423	\$2,167,301	26,343	25,748	25,385 363

OPERATIONS APPROPRIATION

Operation of Traffic Control System

General Justification

For FY 1995, the operation of the Air Traffic Control System will require \$2,187,301,000, 28,560 FTP positions, and 25,748 FTE's. This represents a net increase of \$29,000,000 and decreases of 413 FTP's and 413 FTE's to these levels in FY 1994.

This activity covers the operation of a national system of air traffic control and flight service facilities to assure safety, reliability, and regularity of flight operations. In FY 1995, the FAA will operate 24 en route facilities and an estimated 468 terminal facilities (385 with FAA controllers and 83 with contract controllers) of which approximately 180 provide full radar service handling approximately 170,000 takeoffs and landings and over 1.5 million revenue passengers daily. In addition, the FAA will operate a network of non-automated flight service stations (FSS) and automated flight service stations (AFSS) providing an estimated 35.9 million flight services in FY 1995.

The operation of the Air Traffic Control System consists of five major subactivities:

Air Route Traffic Control Centers

The major elements are the operation of en route air traffic control, long-range radar, NAS Stage A computers (HOST), and direct controller-pilot voice communications. The objective of the en route traffic control system is to provide for safe, orderly, and expeditious movement of the IFR air traffic along the airways and in positive control areas.

Airport Traffic Control Towers

The major elements are the operation of airport surveillance radar, automated radar terminal systems computers, approach lighting, instrument landing systems, and various visual aids and radio navigation facilities. The objective of the terminal air traffic control system is to provide for safe, orderly, and expeditious movement of air traffic in the vicinity of the airport.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

Flight Service Stations

The major elements are the operation of an extensive network of landline telecommunications circuits, point-to-point radio circuits, air-ground radio channels and related equipment for the exchange of air traffic control information, weather information, and for flight assistance services. The objectives of flight service stations are: (1) the provision of flight assistance (pre-flight, in-flight, and emergency); and (2) the collection and distribution of meteorological and aeronautical information.

Planning, Direction, and Evaluation

This subactivity provides top level management and direction of the air traffic control system. Functions include the development of standardized air space and air traffic control procedures, support and maintenance of the air traffic control computer operational software, evaluation of air traffic operations' safety and efficiency, and centralized management of the air traffic flow management system.

System Capacity and Requirements

This subactivity provides leadership for planning, formulating, and implementing short-, medium-, and long-term capacity improvements for the air traffic system and assure that agency weather policies are developed consistent with user needs.

*** Forecast data from FAA Aviation Forecasts, Fiscal Years 1994-2005, FAA-APO 94-1, February 1994.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

Resource Summary (\$000)

	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	(Est.) FY 1994	Proposed Change	(Est.) FY 1995
Centers - PC&B	\$700,559	\$763,299	\$799,357	\$822,407	\$11,928	\$834,335
O.O.	12,868	11,698	11,849	10,355	284	10,639
TOTAL	\$713,427	\$774,995	\$811,206	\$832,762	\$12,212	\$844,974
Towers - PC&B	\$731,300	\$791,704	\$839,551	\$882,570	\$20,050	\$882,620
O.O.	12,580	11,185	12,198	11,280	7,241	19,521
TOTAL	\$743,880	\$802,889	\$851,749	\$893,850	\$27,291	\$901,141
Stations - PC&B	\$224,609	\$239,854	\$247,242	\$252,476	(\$5,277)	\$247,199
O.O.	17,162	16,515	17,277	14,542	56	14,598
TOTAL	\$241,761	\$256,169	\$264,519	\$267,018	(\$5,221)	\$261,797
PD&E - PC&B	\$67,047	\$73,783	\$72,077	\$79,027	(\$350)	\$79,277
O.O.	92,748	92,202	89,608	81,656	(4,845)	76,811
TOTAL	\$159,795	\$165,985	\$161,683	\$161,283	(\$5,195)	\$156,088
System - PC&B	\$1,082	\$1,346	\$1,724	\$1,522	(\$75)	\$1,447
O.O.	1,969	1,979	1,766	1,866	(12)	1,854
TOTAL	\$3,051	\$3,325	\$3,490	\$3,388	(\$67)	\$3,301
TOTAL - PC&B	\$1,724,597	\$1,889,786	\$1,959,951	\$2,010,602	\$26,276	\$2,044,878
O.O.	137,317	133,577	132,686	119,699	2,754	122,423
TOTAL	\$1,861,914	\$2,003,363	\$2,092,647	\$2,130,301	\$29,000	\$2,167,301

OPERATIONS APPROPRIATION

Operation of Traffic Control System

Overtime (\$000)

	FY 1991 Actual	FY 1992 Actual	FY 1993 Actual	FY 1994 Estimate	Proposed Change	FY 1995 Estimate
Centers - Hours Amount	123,900 \$4,570	97,900 \$3,763	85,700 \$3,416	97,900 \$3,941	0 \$47	97,900 \$3,986
Towers - Hours Amount	228,400 \$7,702	188,600 \$6,624	133,600 \$4,861	188,500 \$6,938	0 \$83	188,600 \$7,021
Stations- Hours Amount	77,900 \$1,795	66,400 \$1,695	59,800 \$1,491	66,400 \$1,871	0 \$20	66,400 \$1,691
PD&E - Hours Amount	6,100 \$171	4,300 \$125	2,100 \$63	4,300 \$131	0 \$2	4,300 \$133
ASC - Hours Amount	100 \$1	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0
Total - Hours Amount	436,400 \$14,239	357,100 \$12,107	281,200 \$9,831	367,100 \$12,681	0 \$152	367,100 \$12,833

Notes:

1. Overtime hours have been rounded up/down to the nearest hundred.
2. Overtime hours per subactivity in columns labeled "Actual" are estimated based on payroll and actual obligation data.
3. Estimated overtime hours and dollars are based on projections by the FAA regional offices and on adjusted rate data.
4. Additional dollars shown in proposed change column reflect the increase in overtime costs due to the FY 1995 1.6 percent pay raise.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

Staffing Information

FTP Positions	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	(Est.) FY 1994	Proposed Change	(Est.) FY 1995
Centers	10,334	10,477	10,215	9,992	(163)	9,829
Towers	12,279	12,486	12,164	12,117	(150)	11,967
Stations	4,200	4,120	4,000	3,850	(100)	3,750
PD&E	971	971	971	761	0	761
System Capacity	16	16	16	16	0	16
TOTAL	27,800	28,070	27,366	26,756	(413)	26,343
Total Direct						
Celling FTE's						
Centers	10,051	10,162	9,758	9,523	(112)	9,411
Towers	11,613	11,901	11,975	11,818	(180)	11,638
Stations	4,196	4,199	4,105	3,861	(143)	3,768
PD&E	1,013	1,079	956	917	(6)	911
System Capacity	15	20	20	22	(2)	20
TOTAL	26,890	27,361	26,812	26,161	(413)	25,748
End of Year						
Employment Information						
Centers	10,290	9,809	9,534	9,372	(103)	9,269
Towers	11,675	11,901	11,788	11,674	(246)	11,428
Stations	4,173	4,156	3,974	3,732	(31)	3,701
PD&E	1,089	1,060	914	903	(10)	893
System Capacity	15	15	23	20	0	20
TOTAL	27,222	26,941	26,233	25,701	(390)	25,311

OPS-26

OPERATIONS APPROPRIATION

Operation of Traffic Control System

	Employment Information				Proposed Change	(Est.) FY 1985
	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	(Est.) FY 1994		
CENTERS:						
CWF	8,105	8,154	7,947	7,847	(99)	7,748
Managers	345	362	342	204	(5)	199
Specialists	348	358	400	395	(4)	391
Air Traffic Assistants	550	479	390	220	0	220
Other Support/Trainees	944	456	465	708	6	711
Total	10,290	9,809	9,534	9,372	(103)	9,269
TOWERS:						
CWF	9,616	9,828	9,741	9,676	(124)	9,552
Managers	628	772	734	593	(12)	561
Specialists	808	641	695	658	(8)	652
Air Traffic Assistants	419	371	288	168	(125)	63
Other Support/Trainees	404	289	330	559	21	560
Total	11,875	11,901	11,768	11,674	(245)	11,428
STATIONS:						
Area Supervisors	398	399	378	348	(10)	338
Managers	325	322	284	244	(8)	238
Specialists	3,313	3,303	3,188	3,016	(20)	2,996
Other Support/Trainees	137	132	124	124	5	129
Total	4,173	4,156	3,974	3,732	(31)	3,701
PD&E:						
Total Support	1,069	1,080	914	903	(10)	893
SYSTEM CAPACITY:						
Total Support	15	15	23	20	0	20
TOTAL AIR TRAFFIC:						
CWF	17,721	17,982	17,688	17,523	(223)	17,300
Area Supervisors	396	399	378	348	(10)	338
Managers	1,298	1,456	1,360	1,041	(23)	1,016
Specialists	4,267	4,302	4,283	4,069	(30)	4,039
Air Traffic Assistants	969	650	668	408	(125)	263
Other Support/Trainees	2,569	1,952	1,856	2,312	21	2,333
Total^a	27,222	26,841	26,233	25,701	(350)	25,311

OPERATIONS APPROPRIATION

Operation of Traffic Control System

End of Year Employment - Controller Work Force (CWF)

	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	(Est.) FY 1994	Proposed Change	(Est.) FY 1995
CENTERS - Controllers						
- First Line Supervisors	6,358 856	6,614 866	6,896 808	7,029 748	(49) (20)	6,980 728
Total Controllers	7,214	7,480	7,704	7,777	(69)	7,708
- Developmental Pipeline	891	674	243	70	(30)	40
Total Centers CWF	8,105	8,154	7,947	7,847	(99)	7,748
TOWERS - Controllers						
- First Line Supervisors	7,674 1,453	7,923 1,608	8,172 1,416	8,248 1,356	(73) (21)	8,175 1,335
Total Controllers	9,127	9,431	9,586	9,604	(94)	9,610
- Developmental Pipeline	489	397	153	72	(30)	42
Total Towers CWF	9,616	9,828	9,741	9,676	(124)	9,652
TOTAL - Controllers	14,032	14,537	15,068	15,277	(122)	15,158
- First Line Supervisors	2,309	2,374	2,224	2,104	(41)	2,063
Total Controllers	16,341	16,911	17,292	17,381	(163)	17,218
- Developmental Pipeline	1,380	1,071	396	142	(80)	82
TOTAL Controller Work Force	17,721	17,982	17,688	17,523	(223)	17,300

CONTROLLER WORK FORCE HISTORY FY 1981 THRU FY 1989

7/31/81*	FY 81	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90
16,234	6,575	12,117	13,084	13,714	13,998	14,803	15,433	16,436	16,832	17,226

*Professional Air Traffic Controllers Organization strike occurred on August 3, 1981.

OPERATIONS APPROPRIATIONOperation of Traffic Control SystemGeneral Justification

Air Traffic Retirements 1/	CY 1991		CY 1992		CY 1993		CY 1994		CY 1995	
	Eligible	Actual	Eligible	Actual	Eligible	Actual	Eligible	Estimate	Eligible	Estimate
Centers	758	56	917	101	1,011	108	974	110	1,068	137
Towers	872	80	997	92	1,082	142	1,066	130	1,155	161
TOTAL 2/	1,630	136	1,914	193	2,093	250	2,060	240	2,221	298

1. Numbers include air traffic controllers in Centers and Towers only.

2. Numbers exclude disability retirements.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

The estimate for FY 1995 provides a net increase of \$29,000,000, and decreases of -413 FTE's, and -413 FTE over FY 1994. Changes in the requirements for FY 1995 follow:

	(\$000) TOTAL	CENTERS	TOWERS	STATIONS	PD&E	ASC
<u>Non-discretionary Changes</u>						
1. Mandatory Pay Adjustments	\$82,991	\$21,425	\$28,226	\$1,994	\$1,377	(\$31)
2. Inflation	457	40	43	66	311	7
Subtotal, Non-Discretionary Changes	\$83,448	\$21,465	\$28,269	\$2,060	\$1,688	(\$24)
<u>Program Decreases</u>						
1. Staffing Reductions	(16,872)	(3,109)	(4,073)	(7,608)	(1,841)	(41)
2. Consolidation of ADP Support	(663)				(663)	(10)
3. Awards Reduction	(2,321)	(916)	(991)	(272)	(138)	(4)
4. Travel	(932)	(99)	(145)	(141)	(600)	(7)
5. Charting Reductions	(2,400)				(2,400)	
6. Pay Demonstration	(11,800)	(6,378)	(4,922)			
7. Facility Training Contract	(1,500)				(1,500)	
Subtotal, Program Decreases	(\$36,348)	(\$11,002)	(\$10,131)	(\$8,021)	(\$7,132)	(\$62)
<u>Program Increases</u>						
1. PCS Moves	5,000	1,750	2,250	750	250	0
2. Contract Tower Program	6,900	0	6,900	0	0	0
Subtotal, Program Increases	\$11,900	\$1,750	\$9,150	\$750	\$250	\$0
TOTAL NET CHANGE	\$29,000	\$12,212	\$27,291	(\$5,222)	(\$5,195)	(\$56)

OPERATIONS APPROPRIATION

Operation of Traffic Control System

The estimate for FY 1995 provides a net increase of \$29,000,000 and decreases of -413 FTP and -413 FTE's. Changes in requirements for FY 1995 follow:

Non-discretionary Changes (Net)	-209 FTP's, -209 FTE's; \$53,488,000
1. Mandatory Pay Adjustments (Net)	-209 FTP's, -209 FTE's; \$52,991,000

These changes reflect the pay costs associated with FY 1994 end-of-year on-board staffing due to the effects of the FY 1994 agency-wide hiring freeze, the proposed early retirement and voluntary separation initiative payment, and other mandatory pay changes.

The request includes the following pay changes:

Reduction of \$976,000, 13 FTP's and 13 FTE's for annualization of FY 1994 EOY staffing levels into FY 1995, excluding those reductions associated with the proposed buy-out initiative. Staffing will be lower at the end of FY 1994 than it was at the end of FY 1993. The savings are the result of a lower FTE requirement to support on-board staff.

Savings of \$17,559,000, 196 FTP's and 196 FTE's for the annualization of employee separations associated with the Administration's buy-out in FY 1994.

\$17,838,000 for annualized pay costs associated with FY 1994 locality pay increase.

\$25,656,000 for new FY 1995 WIG's and grade-to-grade increases.

\$24,428,000, the full FY 1995 cost of the 1.6 percent January 1995 pay raise.

\$11,313,000 for employee benefits to accommodate changes in work force demographics and increases in the agency's cost of Health Benefits and FICA (Social Security) over and above the rate of increase for base pay.

Savings of \$7,711,000 due to one less compensable day in FY 1995.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

2. Inflation \$457,000

Price increases totaling \$457,000 are required to meet inflationary needs in such areas as travel, transportation, rents, supplies, contract support and equipment.

Program Reductions -204 FTP's, -204 FTE's; -\$38,348,000

1. Staffing Reductions. -204 FTP's, -204 FTE's; -\$16,672,000

An FY 1995 staffing reduction of -204 FTP's, -204 FTE's and \$16,672,000 is shown as a result of continuing an agency-wide hiring where necessary. This hiring freeze is an important element of the agency's on-going effort to streamline its operations, especially its administrative and support operations, to meet the NPR goals of a more efficient organization. This attrition and early out/buy out authorization will hopefully allow the agency to avoid adverse actions in reducing staffing and streamlining the agency. The controller work force is not subject to hiring freeze restrictions. Reductions in the controller work force result from the conversion of FAA Level I towers to contract operation. As a result, end-of year staffing will decrease by 390 in FY 1995.

2. Streamlining ADP Support. -\$663,000

Savings of \$663,000 will be realized by streamlining the support and maintenance of administrative ADP functions in Washington Headquarters, consistent with the NPR-inspired streamlining and reorganization of Headquarters activities.

3. Awards Reduction -\$2,321,000

Savings of \$2,321,000 will be realized by reducing funding for employee recognition awards.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

4. Travel-\$992,000

Savings of \$992,000 are anticipated as a result of agency efforts to re-engineer processes, reassess the frequency of operational travel requirements, and use video conferencing. These savings will represent a 13 percent reduction from the FY 1994 enacted level of \$7,501,000.

5. Charting Reductions-\$2,400,000

Savings of \$2,400,000 from the FY 1994 base of \$14,800,000 will be realized by reducing the frequency that 56-day charting products used in en route centers are updated. The extension of the cycle will have no impact on safety. Opportunities to combine several charts into multiple purpose charts will be explored as was done for Instrument Flight Rule, Visual Flight Rule, and Flight Case Planning charts.

6. Pay Demonstration-\$11,800,000

The request includes a base reduction of \$11,800,000 due to the scheduled termination of the pay demonstration project. On March 19, 1989, the Office of Personnel Management approved a five-year FAA pay demonstration project to be implemented on June 18, 1989, and terminated on June 17, 1994. For the Air Traffic Program, the program covered approximately 1,700 employees at 9 facilities: New York Air Route Traffic Control Center, New York Terminal Radar Approach Control, Chicago Air Route Traffic Control Center, Chicago O'Hare Air Traffic Control Tower, Chicago O'Hare Terminal Radar Approach Control, Coast Terminal Radar Approach Control, Los Angeles Air Traffic Control Tower, Los Angeles Terminal Radar Approach Control, and Bay Terminal Radar Approach Control. Not only is this project scheduled to end in June 1994, but the recent enactment and implementation of locality-based pay adjustments has reduced the need for this program, especially in an era of very tight budget constraints.

7. Facility Training Contract-\$1,500,000

This reduction from the FY 1994 base of \$15.4 million provides one-time savings in facility contract training through a reduction of training in en route centers. This temporary saving is available in FY 1995 before the implementation of Initial Sector Suite Subsystem training begins in FY 1998.

OPERATIONS APPROPRIATION

Operation of Traffic Control System

Program Increases \$11,900,000

1. Permanent Change of Station (PCS) Moves \$5,000,000

This increase will allow the Air Traffic program to fund a total of 170 moves. An estimated 75 moves are required for employees exercising their return rights from locations such as Guam and Puerto Rico. Funding return rights moves is not discretionary. Once employees elect to exercise their return rights, the FAA is required to fund the moves.

The operation of the Air Traffic Control System requires that key positions be filled with the best qualified people. PCS moves provide management the ability to accomplish that requirement. Unfortunately, in previous years, constrained, but manageable PCS funding levels had to be reduced in order to meet payroll shortfalls in Air Traffic caused by underfunding and the need to absorb additional costs (e.g. locality pay). In FY 1995, PCS funding will become even more critical since there will be few new controllers coming into service and vacancies caused by attrition will require a PCS move to fill the positions. PCS moves also are an essential element in the system of career development for air traffic controllers.

Air Traffic Annual PCS Base

Fiscal Year	Number of Moves	Actual Obligations (\$000)	Average Cost/Move	Percent Increase
1986	1,464	27,316	18,658	
1987	2,577	49,632	19,260	3.2%
1988	1,665	36,204	21,744	12.9%
1989	1,405	35,675	25,391	16.8%
1990	1,464	42,132	28,779	13.3%
1991	1,232	38,755	31,457	9.3%
1992	745	26,620	35,732	13.6%
1993	522	21,671	41,515	16.2%
1994 estimate	68	3,005	44,191	6.4%
1995 request	170	8,005	47,088	6.6%

OPERATIONS APPROPRIATION

Operation of Traffic Control System

2. FAA Contract Tower Program \$8,900,000

The objectives of the FAA Contract Tower Program (FCT) are to assure that an efficient network of control towers is maintained to provide safe and effective service to users of the National Airspace System and to provide this service in the most economical manner. The FAA is expanding the FCT Program over a period of four years to include FAA Level I towers presently staffed by FAA controllers. Funding for the expansion of the program was identified by Congress in the agency's FY 1994 budget. FY 1995 is the second year of the planned expansion of the program. This expansion continues the Tower Streamlining Initiative supported by Congress in FY 1994 and the Vice President's National Performance Review recommendation to contract Level I air traffic control towers. The program also allows the agency to realign its resources in a more efficient and effective manner. The conversion of 99 FAA Level I towers to contract operation is projected to take place over a four year period. Twenty-five towers per year will be contracted for in fiscal years 1994 through 1998. The remaining towers will be converted in FY 1997. In FY 1995, the FAA will have a total of 83 towers operated under contract. FAA-operated Level I cost approximately \$450,000 per year while contract towers cost about \$250,000. At the end of the transition period, expected to last through FY 1999, the Federal Government will realize savings of approximately \$20 million per year by converting smaller towers to contract operation.

The increase will allow the agency to contract 25 FAA Level I towers (\$6.5 million) and fund the annualization of 2 new start towers commissioned in the previous year (\$.4 million).

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
FY 1995 CONGRESSIONAL SUBMISSION
NAS LOGISTICS

	DOLLAR RESOURCES (\$000)			STAFFING			
	PC&B	OTHER OBJECTS	TOTAL	FTP POS	FTE LEVEL		
					TOTAL	FTP	
FY 1993 ACTUAL	\$64,240	\$111,298	\$175,538	1,389	1,382	1,300	82
FY 1994 PROGRAM LEVEL	69,567	106,474	176,041	1,370	1,399	1,358	41
PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	(1,938)	1,623	(315)	(62)	(62)	(62)	0
MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE	0	10,754	10,754	0	0	0	0
PROGRAM REDUCTIONS (DISCRETIONARY)	(1,450)	(1,596)	(3,046)	(23)	(23)	(23)	0
PROGRAM INCREASES	0	0	0	0	0	0	0
FY 1995 REQUEST LEVEL	\$66,179	\$117,255	\$183,434	1,285	1,314	1,273	41

OPS-36

OPERATIONS APPROPRIATIONNAS Logistics SupportGeneral Justification

For FY 1996, the National Airspace System (NAS) Logistics Support activity will require \$183,434,000, 1,285 positions, and 1,314 FTE's. This request represents a net change of \$7,393,000, -85 FTP's, and -85 FTE's from the FY 1994 program level.

This activity is responsible for procurement activities in the regions and at the Mike Monroney Aeronautical Center (IMMAC); the purchasing, leasing, and management of real estate including land, office space, and specialized facilities; material and property management and administrative services to support the day-to-day operations of the agency; depot and limited field level maintenance and supply support for NAS equipment and agency aircraft; and replenishment and repair of spares.

The agency follows a program of modernization that uses cradle to grave, life cycle acquisition processes. This is a structured process that allows for the acquisition, maintenance, and operation of NAS equipment in an efficient and economical manner. The first two steps of the life cycle are approximately 30 percent of the required life cycle expenditure and are funded through the Facilities and Equipment (F&E) appropriation. The remaining 70 percent is funded within the Operations appropriation. This budget identifies the logistics portion of the supply support and operations necessary to complete a year of the life cycle.

The NAS Logistics Support program consists of four subactivities:

Acquisition of Spares and Repair Services (FY 1995: 741 FTP's, 759 FTE's, \$116,452,000)

This subactivity represents 63 percent of the total program. Included are personnel, material, and support equipment for high value and unique repairable modules used to replace failed operational equipment components and to support the daily operations of the agency, including the NAS systems. These functions are essential for continued performance of previously installed field equipment and to support the impact that deployment of the NAS systems will have on the exchange and repair (E&R) program. The NAS Supply Support Program is responsible for acquiring appropriate spares and repair parts required to maintain all FAA major systems. The maintenance required calls for specialized training and sophisticated testing procedures to perform detailed repair of complex multi-level printed circuit boards, major structural repair of navigation and landing systems previously installed in the field, maintenance of training facilities at the FAA Academy, and engineering support for depot level maintenance.

OPERATIONS APPROPRIATION

NAS Logistics Support

Acquisition of Spares and Repair Services (cont.)

Many of the old systems planned for decommissioning are tube type and are currently repaired in the field by electronics technicians. As the FAA progresses to solid state equipment, the capability to repair printed circuit boards in the field does not exist; therefore, the exchange and repair workload is shifting from the field to the FAA Logistics Center (FAALC). Resources to support the FAALC are included in this subactivity. The FAALC is responsive 24 hours a day, 365 days a year and is responsible for the management of FAA's central material inventory and distribution system. It provides logistics support to 14,200 facilities, 72 foreign countries, 2,500 ordering offices and other government agencies. Further, this subactivity supports FAA's aircraft used in Flight Standards for inspector currency, enforcement, and flight inspection of air navigational facilities; and provides material and property management to support the day-to-day operation of the FAA. The activity includes the maintenance and operational support of the Logistics and Inventory System (LIS) and Computer Dispatch System (CDS) -- the agency's central inventory and distribution systems.

Procurement (FY 1995: 290 FTP's, 296 FTE's, \$17,235,000)

This subactivity represents 9 percent of the total program. This subactivity is mainly composed of the salaries and expenses for the Regions and MMAC acquisition and contract administration staff. They administer contracts for: scheduled implementation of the major NAS plan systems; real estate; spares; repair parts and material to maintain operational air navigation, air traffic control facilities, and agency aircraft; maintenance of FAA Academy training equipment; and FAA-owned and leased property. In addition, they will process actions resulting from new air traffic control tower construction projects and for implementation and ongoing support of major NAS systems.

Structural and Specialized Tasks (FY 1995: 208 FTP's, 213 FTE's, \$43,824,000)

This subactivity represents 25 percent of the total program. Included are resources to operate and maintain the MMAC which supports the agency's aircraft, depot level maintenance of NAS equipment, training facilities, medical programs, airmen and aircraft records, and aircraft and airport safety programs. This subactivity includes the alteration, maintenance, and repair of buildings, grounds and roads; management of administrative property; technical administration of contracted A-76 activities; and management of FAA-owned and leased housing. It also includes support for many field facilities; the regional motor fleet; facility security and fire protection; the repair and maintenance necessary to prevent structural damage; and administration of the day-to-day operations. This subactivity is also responsible for providing safe, structurally sound, and secure buildings for persons and property; for preventing higher cost emergency repairs for items that were not repaired while the problem was minimal; and for ensuring availability of functional space to support increased activity related to regional operations.

OPS-38

OPERATIONS APPROPRIATIONNAS Logistics SupportPlanning, Direction and Evaluation (FY 1995: 46 FTP's, 46 FTE's, \$5,923,000)

This subactivity represents 3 percent of the total program. Included are resources to plan, direct, and define program objectives; formulate standards and procedures; and evaluate the effectiveness of the total logistics operation. Included are logistics personnel in the Logistics Service and regional headquarters who supervise and evaluate the day-to-day operation of field facilities, develop and approve operation plans and procedures, and assure compliance with Federal Acquisition Regulations.

OPERATIONS APPROPRIATION

NAS Logistics Support

Workload Measures

Category	Number of Items			Percent Change		
	1992 Actual	1993 Actual	1994 (Est.)	1992 1993	1993 1994	1994 1995
PROCUREMENT						
Procurement Requests Processed/Received	83,177	88,248	71,841			
Contracts Awarded	2,886	3,346	3,310	9.77%	3.74%	2.35%
Contracts Under Administration	3,743	4,286	4,563	15.64%	-1.05%	5.89%
Purchase Orders	38,768	37,433	41,891	4.56%	9.07%	0.94%
Delivery Orders	11,281	10,118	12,577	1.84%	11.11%	3.84%
Mkt of PO/DO	8,781	8,113	7,721	-10.16%	24.30%	12.27%
Contract Modifications	3,111	3,090	3,388	-8.77%	20.30%	3.88%
				-8.88%	9.56%	6.43%
REAL PROPERTY						
Leases, Purchases and Other Agreements	3,648	3,812	4,089	1.80%	13.21%	1.88%
Space Management/Layout	878	879	1,066	0.31%	8.76%	4.88%
Contract Administration	13,036	13,486	14,372	3.31%	6.73%	6.84%
Property Surveys	362	434	408	23.30%	-8.45%	-1.87%
Utility Surveys	1,596	1,488	1,817	-8.33%	22.27%	2.31%
Task Orders	2,884	2,582	2,847	-14.14%	3.32%	2.30%
PERSONAL PROPERTY						
Excess/Disposal Property Actions	28,424	24,788	25,872	1.25%	3.10%	2.51%
In-Use Property Inputs	232,958	182,129	177,380	-21.82%	-2.80%	2.87%
Survey Reports for Lost/Damaged Property	3,227	1,850	1,947	-42.87%	5.24%	-1.44%
Regional Motor Fleet	4,488	4,581	4,800	3.82%	0.41%	0.35%
Project Material	10,778	10,933	15,218	4.56%	-2.12%	5.82%
NAS SUPPLY SUPPORT						
Number of Systems Supported	280	218	282			
Exchange & Repair-LRU				-18.15%	20.18%	13.74%
Contractor	13,136	12,120	24,454	-7.73%	181.77%	28.72%
In-House	26,873	24,758	23,404	-3.58%	-5.47%	0.00%
Number of Aircraft Supported	47	46	47	-4.28%	4.44%	2.13%

OPS-39

OPERATIONS APPROPRIATION

NAS Logistics Support

Resource Summary (\$000)

	(Actual) FY 1981	(Actual) FY 1982	(Actual) FY 1983	(Est.) FY 1984	Change	(Est.) FY 1985
Acquisition of Spare and Repair						
PC&B	33,980	41,878	32,819	38,407	(1,772)	34,336
O.O.	68,811	72,353	70,453	71,837	10,700	81,817
Total	102,791	114,231	103,272	110,244	9,988	116,152
Procurement						
PC&B	17,853	28,806	16,138	17,477	(852)	10,325
O.O.	877	800	787	813	(3)	810
Total	18,730	29,606	16,925	18,290	(855)	11,135
Structural and Specialized Tools						
PC&B	12,808	13,382	10,798	11,886	(688)	11,121
O.O.	48,731	48,408	37,880	32,881	12	32,763
Total	61,539	61,790	48,678	44,767	(6,771)	43,884
Planning, Direction and Evaluation						
PC&B	4,181	4,578	3,887	3,893	(185)	3,788
O.O.	3,648	3,158	2,458	2,133	(8)	2,125
Total	7,829	7,736	6,345	6,026	(283)	5,913
Executive Director for Acquisition						
PC&B	1,481	0	0	0	0	0
O.O.	34	0	0	0	0	0
Total	1,515	0	0	0	0	0
TOTAL	89,444	78,834	84,249	89,587	(3,388)	88,176
O.O.	128,682	126,828	111,286	100,474	16,781	117,258
Total	188,126	205,662	195,535	190,061	7,383	205,434

OPERATIONS APPROPRIATION

NAS Logistics Support

NAS SUPPLY SUPPORT
FAA LOGISTICS CENTER STOCKS AND STORES
Major NAS Systems
\$000

Systems	Actual FY 1993	Estimate FY 1994	Changes for New NAS Systems	Request FY 1995
Automation	10,403	9,198	1,532	10,700
Telecommunications	6,194	3,878	1,326	5,201
Surveillance	13,384	12,900	2,787	16,787
Navigation & Landing	7,890	7,908	988	9,878
Weather	837	811	800	1,811
Environmental	3,902	3,866	2,288	5,942
Aircraft	8,919	11,817	213	12,130
Test Equipment	8,802	5,578	968	6,482
Other Systems	6,776	10,108	(83)	10,045
Totals	84,847	88,008	10,754	76,754

OPERATIONS APPROPRIATION
NAS LOGISTICS SUPPORT

STAFFING INFORMATION

FTP Positions	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	(Est.) FY 1994	Proposed Change	(Est.) FY 1995
Acquisition of Spares and Repairs Procurement	821	752	801	790	(49)	741
Structural and Specialized Tasks	414	312	313	368	(19)	298
Planning, Direction and Evaluation	271	224	226	222	(14)	208
Executive Director for Acquisition	83	50	50	49	(3)	46
TOTAL	23	8	8	8	8	8
	1,592	1,338	1,389	1,370	(85)	1,295
Ceiling FTE's						
Acquisition of Spares and Repairs Procurement	834	898	800	808	(49)	758
Structural and Specialized Tasks	390	420	311	316	(19)	298
Planning, Direction and Evaluation	292	316	223	227	(14)	213
Executive Director for Acquisition	88	108	48	49	(3)	48
TOTAL	18	18	8	6	8	8
	1,832	1,758	1,382	1,389	(85)	1,314
End of Year Employee Information						
Acquisition of Spares and Repairs Procurement	812	747	758	731	(28)	705
Structural and Specialized Tasks	418	385	292	285	(16)	276
Planning, Direction and Evaluation	285	282	218	206	(8)	197
Executive Director for Acquisition	78	70	47	46	(2)	44
TOTAL	8	8	8	8	8	8
	1,591	1,404	1,299	1,287	(46)	1,221

NOTES: FY 1992 FTP's and FY 1993 FTE's and EOY reflect a baseline transfer from NAS Logistics to Headquarters Administration and NAS Design Management consistent with the Agency's restructuring of operational management and alignment of functions in the fall of 1992. FY 1993 FTP's reflect a baseline transfer of 45 FTP's from Systems Maintenance for the E&R function and 8 FTP's from BDM to continue the alignment of functions. FY 1994 FTP's reflect a baseline transfer of 38 FTP from SM and 18 from HRM for the E&R function, one FTP from SM, and 3 FTP to BDM to complete the alignment of functions.

OPERATIONS APPROPRIATION**NAS Logistics Support**

The estimate for FY 1995 provides a net change of -85 FTP's, -85 FTE's, and \$7,393,000 from FY 1994. Changes in requirements for FY 1995 are as follows:

NON-DISCRETIONARY CHANGES

1. Mandatory Pay Adjustments (Net)	\$000
2. Inflation	-1,938
Subtotal, Non-Discretionary Changes	1,623
	-315

**MANDATORY INCREASES ASSOCIATED WITH
NEW SYSTEMS COMING ON-LINE**

1. NAS Supply Support	10,754
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PROGRAM REDUCTIONS

1. Staffing Reductions	-1,300
2. Consolidation of ADP Support	-219
3. Awards Reduction	-180
4. Travel	-377
5. Headquarters Building Modernization	-1,000
Subtotal, Program Reductions	-3,046

TOTAL RECOMMENDED CHANGE

7,393

OPERATIONS APPROPRIATION

NAS Logistics Support

The estimate for FY 1995 provides a net change of -85 positions, -85 FTE and \$7,393,000. Changes in requirements for FY 1995 follow:

NON-DISCRETIONARY CHANGES (Net).....-82 FTP's, -82 FTE's, and -\$315,000

1. Mandatory Pay Adjustments (Net).....-82 FTP's, -82 FTE's, and -\$1,938,000

These changes reflect the pay costs associated with FY 1994 end-of-year on-board staffing due to the effects of the FY 1994 agency-wide hiring freeze, the proposed early retirement and voluntary separation initiative payment, and other mandatory pay changes.

The request includes the following pay changes:

Reduction of \$1,422,000, 26 FTP's, and 26 FTE's for annualization of FY 1994 staffing levels, excluding those reductions associated with the proposed buy-out initiative. Staffing will be lower at the end of FY 1994 than it was at the end of FY 1993. The savings are the result of a lower FTE requirement to support on-board staff.

Savings of \$2,300,000, 36 FTP's, and 36 FTE's for annualization of employee separations associated with the Administration's proposed buy-out in FY 1994.

\$589,000 for annualized pay costs associated with FY 1994 locality pay increase.

\$433,000 for new FY 1995 within grade increases.

\$802,000 for the full FY 1995 cost of an estimated 1.6 percent January 1995 pay raise.

\$214,000 for employee benefits to accommodate changes in workforce demographics and increases in the agency cost of FERS, Health Benefits, and FICA (Social Security) over and above the rate of increase for base pay.

Savings of \$254,000 due to one less compensable day in FY 1995.

OPERATIONS APPROPRIATION

NAS Logistics Support

2. Inflation \$ 1,623,000

Price increases totaling \$1,623,000 are required to meet inflationary needs in such areas as travel, transportation, rents, supplies, contract support and equipment.

MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE..... \$10,754,000

1. Exchange and Repair Support \$10,754,000

This request includes \$10,754,000 over a FY 1994 base of \$66,000,000. The FAA is currently midway through implementation of a major effort to modernize the NAS. Capital expenditures for modernization of the NAS are made under the Facilities and Equipment (F&E) Appropriation. Once new systems are put in place, the costs of operating and maintaining the systems are covered by the Operations Appropriation. These costs are in addition to operating and maintenance costs associated with existing systems which have not been replaced or phased out. FAA must continue to cover these costs as new systems are brought on line.

Requested increase will cover the costs of providing support to approximately 21 new high technology NAS systems within 7 FAA disciplines (Automation, Telecommunications, Surveillance, Weather, Navigation and Landing, aircraft, and other systems) being deployed during FY 1995 and for additional installations of systems which began initial deployments in FY 1993 and 1994. The FAALC is the only depot level support service for maintenance of all NAS systems which includes components for field level replacement and/or repair and the support of FAALC E&R field requirements. This funding will enable NAS Logistics to provide life cycle supply support to the new NAS systems that are fielded by the F&E appropriation.

PROGRAM REDUCTIONS -23 FTP's, -23 FTE's, and -\$3,046,000

1. Staffing Reductions.....-23 FTP's, -23 FTE's, and -\$1,300,000

An FY 1995 staffing reduction of 23 FTP's, 23 FTE's, and \$1,300,000 is shown as a result of continuing an agency-wide hiring freeze in all areas except special interest staff. The hiring freeze is intended to enable the agency to reduce staff to meet the NPR goals of a more efficient organization. Attrition as a result of the freeze and early out/buy out legislation will allow FAA to avoid adverse actions in attaining reduced staffing goals.

OPERATIONS APPROPRIATION

NAS Logistics Support

2. Streamlining ADP Support.....-\$219,000

Savings of \$219,000 will be realized by streamlining the support and maintenance of administrative ADP functions in Washington Headquarters, consistent with the NPR-inspired streamlining and reorganization of Headquarters activities.

3. Awards Reduction-\$150,000

Savings of \$150,000 will be realized by reducing funding for employee recognition awards.

4. Travel-\$377,000

Savings of \$377,000 are anticipated as a result of agency efforts to re-engineer processes, reassess the frequency of operational travel requirements, and use video conferencing. These savings will represent a 29% reduction from the FY 1994 enacted level of \$1,313,000.

5. Headquarters Building Modernization-\$1,000,000

Savings of \$1,000,000 will be realized through the reduction of non-recurring costs associated with the Headquarters Building Modernization Program. This program is designed to consolidate into two buildings, FAA personnel who are currently located in eight buildings, and to modernize the Headquarters building to upgrade electrical systems to support modern day computer technology; relieve overcrowded conditions; and correct health and safety violations. Upon completion of the project there will be offsetting annual savings of approximately \$350,000 in shuttle services, security, and parking, and approximately \$225,000 annually for contracted meeting space. This reduction will defer completion of the modernization program approximately one year to FY 1998.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
FY 1995 CONGRESSIONAL SUBMISSION
SYSTEMS MAINTENANCE

	DOLLAR RESOURCES (\$000)			STAFFING			
	PC&B	OTHER OBJECTS	TOTAL	FTP POS	FTE LEVEL		
					TOTAL	FTP OTFTP	
FY 1993 ACTUAL	\$628,545	\$217,817	\$846,362	10,991	10,359	10,148	211
FY 1994 PROGRAM LEVEL	641,641	213,661	855,302	10,454	10,139	9,979	160
PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	542	3,213	3,755	(235)	(235)	(235)	0
MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE	0	20,748	20,748	0	0	0	0
PROGRAM REDUCTIONS (DISCRETIONARY)	(12,032)	(23,860)	(35,892)	(115)	(115)	(115)	0
RECOMMENDED PROGRAM INCREASES	518	3,682	4,200	0	0	0	0
FY 1995 REQUEST LEVEL	\$630,669	\$217,444	\$848,113	10,104	9,789	9,629	160

OPERATIONS APPROPRIATION
Maintenance of Traffic Control System

General Justification

For FY 1995, the Systems Maintenance activity will require \$948,113,000, 10,104 FTP positions, and 9,789 FTE's. The request includes a net decrease of \$7,189,000, 350 FTP positions, and 350 FTE's from the FY 1994 level.

The Maintenance of the Traffic Control System consists of three major subactivities:

Field Maintenance (FY 1995: 9,007 FTP, 8,596 FTE's, \$746,684,000)

This subactivity contains resources for the maintenance, repair and operation of facilities and equipment at 56 general National Airspace System (NAS) sector offices and 21 air route traffic control centers (ARTCC's) in the NAS. Direct FAA staffing is the core resource for this function. It is expected that the FY 1995 end-of-year employment level will be comprised of 8,200 personnel in the field maintenance work force (a decrease of 206 from FY 1994). These functions include maintenance of air traffic control equipment, navigation and landing aids, flight service facilities, and support of FAA plant facilities. Staffing responsibilities under this subactivity include the maintenance and repair of air navigation aids, traffic control communications, and plant facilities. This includes airfields, housing, and related utility systems to assure the reliability and accuracy of all installed equipment.

Engineering (FY 1995: 462 FTP, 484 FTE's, \$40,157,000)

This subactivity contains resources for developing, coordinating, and prescribing technical standards and procedures for installation, improvement, performance, and maintenance of facilities in the National Airspace System (NAS). Personnel financed under this subactivity are located in Washington, the regional headquarters, the Mike Monroney Aeronautical Center, and the Federal Aviation Administration Technical Center. Some specific services provided under this subactivity are:

- 1) Engineering design services, e.g., improvements to facilities; technical assistance in the preparation of specifications, and review and approval of instruction books and field installation procedures; and site selection of field facilities and joint commissioning acceptance.
- 2) Development and coordination of maintenance and technical operation of all installed facilities within the system; technical standards; technical performance and corrective actions as required; and system information and analysis.
- 3) Purchase of special working equipment and supplies, equipment rentals and repairs; and other services required, but not provided by the NAS Logistics Support budget activity.

OPERATIONS APPROPRIATION **Maintenance of Traffic Control System**

Planning, Direction and Evaluation (FY 1995: 635 FTP, 709 FTE's, \$81,272,000)

This subactivity contains the resources necessary for the overall policy, planning, direction, management, and evaluation of national and region/center programs. Personnel funded under this subactivity are responsible for: the facilities establishment program, i.e., construction, installation, improvement, dismantling, and relocation of facilities comprising the NAS; facilities maintenance and performance, including frequency assignments and configuration management of such facilities comprising the NAS; purchase of special work equipment and supplies, equipment rentals and repairs; and other services required, but not provided by the NAS Logistics Support budget activity. These employees are located in Washington, the regional headquarters, the Mike Monroney Aeronautical Center, and the Federal Aviation Administration Technical Center.

Major Initiatives and Changes

1. An increase of \$19,448,000 is requested for contract maintenance of NAS facilities and equipment currently installed in the NAS and being supported by the Facilities and Equipment (F&E) appropriation.
2. The five-year FAA pay demonstration project was implemented on June 18, 1989, and will expire on June 17, 1994. A program reduction of \$2,500,000 is projected.
3. An additional \$1,300,000 is required to fund utility costs for new and replacement facilities planned for commissioning in FY 1995.
4. A reduction of \$19,217,000 reflects the transfer of funds to F&E for leases which provide air traffic control services or navigation and landing aids.
5. A savings of \$500,000 is projected as a result of consolidating certain field maintenance sector office functions.
6. An increase of \$2,500,000 is requested for the operation and maintenance of air traffic facilities at DOD base closure locations that support the NAS (i.e., providing personnel, training and logistics support to service DOD equipment not currently within the FAA inventory).
7. A \$1,700,000 increase will fund Permanent Change of Station moves required to staff facility vacancies and for employees exercising their return rights.

OPERATIONS APPROPRIATION
Maintenance of Traffic Control System

Workload and Performance Indicators

The following performance indicators have been developed for the field maintenance subactivity:

<u>Fiscal Year</u>	<u>Number of Facilities</u>	<u>Equipment and Service Availability</u>
1991	28,123	99.84%
1992	28,634	99.85%
1993	28,284	99.85%
1994	29,201 (est.)	99.85% (est.)
1995	29,493 (est.)	99.85% (est.)

The estimate for FY 1995 provides for the continuation of direct maintenance services, including direction and engineering, related to the operation and improvement of the technical operation and maintenance of facilities and equipment. These maintenance services are essential to the safety and reliability of the National Airspace System (NAS).

The additional funds requested for utilities and contract maintenance are required to provide for increased costs of maintaining existing facility systems in operation at the end of FY 1994 and maintenance for new facilities and equipment approved in prior years. Facilities and Equipment (F&E) appropriations. These new facilities and equipment are either under construction or scheduled for commissioning and operation in FY 1995.

OPERATIONS APPROPRIATION

Maintenance of Traffic Control System

SUMMARY OF MAJOR ESTABLISHMENTS AND REPLACEMENTS

ESTABLISHMENT PROGRAM	FY 52 BASE	COMAS- BONNOS	DISCONT- SERVICE	END OF YEAR	COMAS- BONNOS	DISCONT- SERVICE	END OF YEAR	COMAS- DISCONT- BONNOS	DISCONT- SERVICE	END OF YEAR
EN ROUTE AIR TRAFFIC CONTROL SERVICES										
AIR ROUTE SURVEILLANCE RADAR	116	0	0	116	1	0	116	1	0	117
AIR ROUTE TRAFFIC CONTROL CENTER	21	0	0	21	0	0	21	0	0	21
AIR BEACON INTERROGATOR	22	3	0	25	0	0	25	0	0	25
COMBINED CENTER/TOWER FACILITIES	3	0	0	3	0	0	3	0	0	3
TERMINAL AIR TRAFFIC CONTROL AND SERVICES										
AT SERVICES										
VFR TOWERS:										
PAA OPERATED	198	3	0	201	0	-25	176	0	-25	151
PAA CONTRACT TOWER	27	0	0	27	31	0	56	25	0	83
NONRADAR APPROACH CONTROL TOWER	18	0	0	18	0	0	18	0	0	18
LIMITED RADAR APPROACH CONTROL TOWER	37	1	0	38	2	0	40	0	0	40
FULL RADAR APPROACH CTL TWR	149	1	0	150	0	-1	149	0	0	149
TERMINAL RADAR APPROACH CONTROL (TRACON ONLY)	28	1	0	30	1	0	31	0	-2	28
AT FACILITIES										
AIRPORT SURFACE DETECTION EQUIPMENT	13	1	0	14	8	-1	21	2	0	23
AIRPORT SURVEILLANCE RADAR	208	7	-4	208	2	0	211	2	0	213
ATC RADAR BEACON	323	3	-7	319	0	0	319	1	0	320
RADIO COMMUNICATIONS LINK REPEATER *	708	119	-12	815	28	0	843	11	0	854
RADIO COMMUNICATIONS LINK TERMINAL - MODE-S	170	17	-4	183	8	0	189	7	0	196
	0	6	0	6	27	0	33	1	0	34
FLIGHT SERVICE FACILITIES										
FLIGHT SERVICE STATIONS:										
DOMESTIC	110	0	-35	75	0	-22	53	0	-23	30
INTERNATIONAL	1	0	0	1	0	0	1	0	0	1
AUTOMATED	59	0	0	59	2	0	61	0	0	61
FLIGHT SERVICE DATA PROCESSING SYSTEM	14	4	0	18	0	0	18	0	0	18
AUTOMATED WEATHER OBSERVING SYSTEM **	345	69	-1	413	28	0	439	13	0	452

* Includes Radio Microwave Link Terminals
 ** Includes Radio Microwave Links
 *** Includes Automated Surface Observing System

OPERATIONS APPROPRIATION Maintenance of Traffic Control System

ESTABLISHMENT PROGRAM	FY 62 BASE	COMMS- BONNOS	DISCONT- SERVICE	END OF YEAR	COMMS- BONNOS	DISCONT- SERVICE	END OF YEAR	COMMS- BONNOS	DISCONT- SERVICE	END OF YEAR
TERMINAL DOPPLER WEATHER RADAR	0	0	0	0	0	0	0	0	0	0
NEXT GENERATION WEATHER RADAR	0	0	0	0	0	0	0	0	0	0
DIRECTION FINDER EQUIPMENT	228	3	-2	229	0	0	0	3	10	0
REMOTE CENTER AIRGROUND	0	0	0	0	0	0	0	0	0	0
COMMUNICATIONS FACILITY	650	18	-4	662	2	0	664	35	0	669
REMOTE COMMUNICATIONS OUTLET	1,717	29	-35	1,711	7	0	1,718	13	0	1,731
NAVIGATION AND LANDING AIDS										
APPROACH LIGHT SYSTEM	508	32	-6	532	5	0	537	13	-7	543
DISTANCE MEASURING EQUIPMENT	571	17	-2	586	2	0	586	2	0	590
INSTRUMENT LANDING SYSTEM	1,089	24	0	1,083	24	-6	1,111	26	-12	1,125
LEAD-IN LIGHT FACILITY	17	2	0	19	1	0	20	0	0	20
MICROWAVE LANDING SYSTEM	3	0	0	3	0	0	3	0	0	3
CORRECTIONAL AIRPORT LIGHTING SYSTEM	38	1	-1	38	2	0	40	3	0	43
RUNWAY END IDENTIFICATION LIGHT	650	26	-2	676	25	0	701	6	0	708
RUNWAY VISUAL RANGE	459	3	0	462	10	0	472	1	0	473
TACTICAL AIR NAVIGATIONAL EQUIPMENT	657	0	0	657	0	0	657	0	0	657
VHF OMNIDIRECTIONAL RANGE	1,010	7	-6	1,011	0	0	1,011	6	0	1,017
VISUAL APPROACH SLOPE INDICATOR ***	1,368	55	-8	1,413	56	0	1,469	58	0	1,527
GROUND STATION SATELLITE SYSTEM	0	0	0	0	0	0	0	4	0	4
TOTAL	11,807	452	-129	12,130	279	-55	12,354	239	-69	12,524

*** Includes Precision Approach Path Indicator

REPLACEMENT PROGRAM

Airport Surveillance Radar (ASR)	36	35
Instrument Landing System (ILS)	3	10
VHF Omnidirectional Range (VOR)	3	28

OPERATIONS APPROPRIATION

Maintenance of Traffic Control System

New facilities and services are necessary for the following systems:

En Route Air Traffic Control and Services: Facilities in this system promote the safe, expeditious, and orderly flow of aircraft operating on Instrument Flight Rules (IFR) flight plans within controlled airspace, primarily between departure and destination terminal areas. In FY 1995, 1 air route surveillance radar system is planned for commissioning.

Terminal Control and Services: Facilities in this system ensure the safe and efficient flow of aircraft operating in the immediate vicinity of the airport and provide for approach control services to ensure separation of arriving, departing and en route aircraft. In FY 1995, 49 new facilities are planned for commissioning: 25 FAA contract towers, 2 airport surface detection equipment systems, 2 airport surveillance radar systems, 1 ATC radar beacon, 11 radio communications link repeaters, 7 radio communications link terminals, and 1 mode-s/data link.

Flight Service Facilities: This system includes facilities for flight assistance, en route/ground communications, dissemination of meteorological and aeronautical information, and monitoring of navigation aids. In FY 1995, 71 new facilities are planned for commissioning in this system: 13 automated weather observing systems, 10 next generation weather radars, 35 remote center air/ground communications facilities, and 13 remote communications outlets.

Navigation and Landing Aids: Navigation facilities in this system define the location of principal airways and enable pilots to determine positive distance and direction information from ground stations. The landing aids provide pilots with direction, distance, vertical guidance, and alignment during approach and landing in Instrument Flight Rules conditions. In addition, there are a variety of lighting aids which enable pilots to have visual contact with the active runway through visual aids to align the aircraft to the approach path and runway. In FY 1995, 118 such facilities are scheduled for commissioning.

OPS-54

OPERATIONS APPROPRIATIONMaintenance of Traffic Control System, Activity SummaryMajor New Facilities Scheduled for Commissioning in FY 19951. EN ROUTE AIR TRAFFIC CONTROL SERVICES

- A. Air Route Surveillance Radar (1 location)
Nebraska: Rockville
- B. FAA Contract Tower (25 locations)
Locations have not been determined.

2. TERMINAL AIR TRAFFIC CONTROL SERVICES

- A. Airport Surface Detection Equipment (2 locations)
Florida: Miami
Tampa
- B. Airport Surveillance Radar (2 locations)
Alabama: Montgomery
Virginia: Charlottesville
- C. ATC Radar Beacon (1 location)
Nebraska: Rockville
- D. Radio Communications Link Repeater (11 locations)
Florida: Melbourne
Illinois: Kankakee
Indiana: Goshen

Kentucky:
 Georgetown
 Jackson
 Jonesville
 Holcomb
 New York
 Newland
 Holston Mt.
 Norton

Mississippi:
 New York:
 North Carolina:
 Tennessee:
 Virginia:

E. Radio Communications Link Terminal (7 locations)

California:
 Los Angeles
 Harcourt
 Goddard
 Lyons
 Milton
 Grinston
 Grant

Nebraska:

F. Mode-S (1 location)
 Tennessee:

Memphis

3. FLIGHT SERVICE FACILITIES

A. Automated Weather Observing System (13 locations)

Illinois:
 Aurora
 Lawrenceville
 Mattoon
 Adrian
 Benton Harbor
 Hibbing
 Ashtabula

Michigan:

Minnesota:
 Ohio:

OPS-56

Ohio:	Defiance
	Lancaster
	Lima
	Marion
South Dakota:	Pierre
	Pine Ridge
B. <u>Next Generation Weather Radar</u> (10 locations)	
Arkansas:	Little Rock
Colorado:	Denver
Florida:	Jacksonville
	Miami
Kansas:	Dodge City
	Goodland
	Kansas City
Missouri:	St. Louis
	Memphis
Tennessee:	Fort Worth
Texas:	
C. <u>Remote Center Air/Ground Communications Facility</u> (35 locations)	
Arkansas:	Sand Point
California:	Mill Valley
	Paso Robles
	Sacramento
	Miami
Florida:	Cascade
Idaho:	Aurora
Illinois:	Belleville
	Terre Haute
Indiana:	Columbia
Missouri:	Malmstrom
Montana:	

Nebraska:

Ogallala
Valentine
Binghamton
Garden City

New York:

New York
Asheville
Brookville
Burns
Fossil

North Carolina:

Ohio:
Oregon:

Pennsylvania:

Allegheny
Erie

Texas:

Brownsville
Corpus Christi
Cumby
Dallas/Ft. Worth
Gainesville
Killeen

Utah:

Mineral Well
Snowville
Ocean Shore
Omak

Washington:**West Virginia:**

Clarksburg
Huntington
Farron

Wyoming:**D. Remote Communications Outlet (13 locations)****Alabama:**

Shettisham

California:

Alturas

Colorado:

Telluride

Idaho:

Cascade

Kansas:

Lawrence

Kentucky:
Nebraska:
Nevada:
New York:
Pennsylvania:
South Dakota:
Utah:
Wyoming:

Louisville
Falls City
Beatty
New York
Philadelphia
Spearfish
Blanding
Lovell

4. NAVIGATION AND LANDING AIDS

A. Approach Light System (13 locations)

Alaska:
Georgia:
Illinois:
Iowa:
Kansas:
Missouri:
Nebraska:
Texas:

Kenai
Lawrenceville
Chicago
Rockford
Dubuque
Waterloo
Salina
Columbia
Jefferson City
Joplin
Kansas City
Lincoln
Dallas/Ft. Worth

B. Distance Measuring Equipment (2 locations)

Kansas:
Missouri:

Wichita
Jefferson City

- C. Instrument Landing System (26 locations)
- Colorado: Denver (3)
Front Range
Daytona Beach
Jacksonville (2)
Miami
 - Florida: Atlanta (3)
Covington
New Orleans (2)
Bartlesville
Portland (2)
Charleston
Memphis
Austin
Dallas/Ft. Worth (4)
Salt Lake City
Ocean Shore
 - Georgia: Washington:
 - Kentucky: Utah:
 - Louisiana: Washington:
 - Oklahoma: Arkansas:
Fayetteville
 - Oregon: Alaska:
Gustavus
 - South Carolina: Oregon:
Aurora
 - Tennessee: Michigan: (5 locations)
 - Texas: Minnesota:
Detroit
St. Paul
Wildwood
Ravenna
Waukesha
- D. Omnidirectional Airport (3 locations)
- E. Runway End Identification Light (5 locations)

F. Runway Visual Range (1 location)

Ohio: Akron

G. VHF Omnidirectional Range (6 locations)

Alaska: St. Paul Island
 Florida: Ft. Myers
 Kentucky: Hazard
 Texas: East Bernard
 Dallas/Ft. Worth (2)

H. Visual Approach Slope Indicator (58 locations)

Alabama:

Auburn
 Birmingham
 Evergreen
 Truckee
 Denver (2)
 Ft. Collins
 Greeley

California:

Colorado:

Florida:

Pagosa Springs
 Jacksonville
 Miami

Idaho:

New Port Richey
 West Palm Beach
 Jerome

Illinois:

Salmon
 Carbondale
 Palwaukee

Iowa:

Springfield
 Council Bluffs
 Des Moines

Michigan:

Detroit

Michigan:	Menominee
Minnesota:	St. Paul (2)
Missouri:	Lees Summit
	Springfield
	St. Charles
	St. Louis
	Washington
	Great Falls
Montana:	Missoula
	Princeton
New Jersey:	Albuquerque (2)
New Mexico:	Montgomery
New York:	Syracuse
	Sanford
North Carolina:	Delaware
Ohio:	Goshen
	Willoughby
	Youngstown
Oklahoma:	Oklahoma City
Oregon:	Creswell
	Hood River
	Medford
	Mc Minnville
	Salem
Pennsylvania:	Allegheny
	Bloomsburg
	Erie
	Johnstown
	Thomasville
	Zeienople
Tennessee:	Memphis

OPS-62

Washington:

Pasco

Shelton

Appleton

Fond Du Lac

Wisconsin:

I. Ground Station Satellite System (4 locations)

California:

Palmdale

New Hampshire:

Nashua

New York:

Ronkonkoma

Virginia:

Leesburg

OPERATIONS APPROPRIATION
Maintenance of Traffic Control System

1047

Overtime

		Actual FY 1991	Actual FY 1992	Actual FY 1993	(Est.) FY 1994	(Est.) FY 1995
FIELD MAINTENANCE	Hours					
	Amount (\$000)					
		251,416	199,866	180,367	199,996	199,998
		6,616	5,978	5,990	6,260	6,251
ENGINEERING	Hours					
	Amount (\$000)					
		9,157	9,322	4,324	7,444	6,729
		185	224	146	256	172
PLANNING, DIRECTION AND EVALUATION	Hours					
	Amount (\$000)					
		4,242	8,111	3,084	3,328	2,245
		141	213	160	142	129
Total	Hours					
	Amount (\$000)					
		284,815	217,299	167,775	210,770	208,972
		6,942	6,415	6,296	6,658	6,552

	FY 1992		FY 1993		FY 1994		FY 1995	
Retirements	Eligible	Actual	Eligible	Actual	Eligible	Estimate	Eligible	Estimate
Field Maintenance	1,373	246	1,551	224	1,520	350	1,394	350

OPS-63

OPERATIONS APPROPRIATION
Maintenance of Traffic Control System
Resource Summary (\$000)

	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	(Est.) FY 1994	Proposed Change	(Est.) FY 1995
FIELD MAINTENANCE						
PC&B	\$472,436	\$507,003	\$540,637	\$554,570	\$3,490	\$558,060
O.O.	187,905	174,393	184,288	184,603	4,021	\$188,624
TOTAL	\$640,041	\$681,396	\$724,923	\$739,173	\$7,511	\$746,684
ENGINEERING						
PC&B	\$29,405	\$31,139	\$38,859	\$38,050	(\$6,296)	\$31,754
O.O.	10,465	8,426	14,760	8,546	(143)	8,403
TOTAL	\$39,870	\$39,565	\$53,619	\$46,596	(\$6,439)	\$40,157
PD&E						
PC&B	\$42,425	\$47,177	\$49,032	\$49,021	(\$8,166)	\$40,855
O.O.	13,495	17,333	18,788	20,512	(95)	20,417
TOTAL	\$55,920	\$64,510	\$67,820	\$69,533	(\$8,261)	\$61,272
TOTAL						
PC&B	\$544,266	\$585,319	\$628,528	\$641,641	(\$10,972)	\$630,669
O.O.	191,565	200,152	217,834	213,661	3,763	217,444
TOTAL	\$735,831	\$785,471	\$846,362	\$855,302	(\$7,189)	\$848,113

OPERATIONS APPROPRIATION
Maintenance of Traffic Control System

1049

Staffing Information

FTP Positions	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	(Est.) FY 1994	Proposed Change	(Est.) FY 1995
FM	9,533	9,711	9,738	9,258	(249)	9,007
ENG	456	495	532	505	(43)	482
PD&E	599	642	721	693	(58)	635
TOTAL	10,588	10,848	10,991	10,454 1/	(350)	10,104

Ceiling FTE's

FM	8,922	8,009	8,943	8,845	(249)	8,596
ENG	456	466	556	527	(43)	484
PD&E	605	692	860	787	(58)	709
TOTAL	9,983	10,167	10,359	10,139	(350)	9,789

End of Year
Employment Information

FM	8,994	8,995	8,758	8,406	(206)	8,200
ENG	464	433	501	459	(9)	450
PD&E	609	680	774	664	(40)	624
TOTAL	10,067	10,108	10,031	9,529	(255)	9,274

1/ Reflects a base transfer of 52 vacant authorized positions to NAS Design and Management, and 33 vacant authorized positions to Headquarters Administration to properly align positions with current employment levels. As employment levels decline in future years, further position reductions will be taken.

OPS-65

OPERATIONS APPROPRIATION
Maintenance of Traffic Control System

The estimate for FY 1985 provides a net decrease of -\$7,189,000, -350 FTP positions, and -350 FTE's from the FY 1984 level. Changes in requirements for FY 1985 follow:

	(\$000)	FIELD MAINT.	ENGINEERING	PD&E
NON-DISCRETIONARY CHANGES				
1. Mandatory Pay Adjustments (Net)	\$455	\$7,404	(\$3,017)	(\$3,932)
2. Inflation	3,300	2,977	83	260
Subtotal, Non-Discretionary Changes	3,755	10,381	(2,954)	(3,872)
MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE				
1. Contract Maintenance	19,448	19,448	0	0
2. Utility Costs for New CIP Facilities	1,300	1,300	0	0
Subtotal, Mandatory Increases for New Systems	20,748	20,748	0	0
PROGRAM REDUCTIONS				
1. Staffing Reductions	(8,212)	(898)	(3,208)	(4,108)
2. Streamlining ADP Support	(338)	(270)	(24)	(44)
3. Awards Reduction	(1,241)	(1,029)	(75)	(137)
4. Travel	(3,597)	(3,117)	(178)	(302)
5. Pay Demonstration Project	(2,500)	(2,500)	0	0
6. Facility Leases	(19,217)	(19,217)	0	0
7. Consolidation of Field Maint. Sector Office Functions	(500)	(500)	0	0
8. Tower Decommissionings	(287)	(287)	0	0
Subtotal, Program Decreases	(35,892)	(27,818)	(3,485)	(4,589)
PROGRAM INCREASES				
1. DOD Base Closures	2,500	2,500	0	0
2. Permanent Change of Station (PCS) Moves	1,700	1,700	0	0
Subtotal, Program Increases	4,200	4,200	0	0
TOTAL RECOMMENDED CHANGE	(\$7,189)	\$7,511	(\$6,439)	(\$8,261)

OPERATIONS APPROPRIATION
Maintenance of Traffic Control System

The estimate for FY 1995 provides a net decrease of 350 FTP positions, 350 FTE's, and \$7,189,000. Changes in requirements for FY 1995 follow:

NON-DISCRETIONARY CHANGES (Net) -235 FTP positions, -235 FTE's; and \$3,755,000
 1. Mandatory Pay Adjustments (Net) -235 FTP positions, -235 FTE's; and \$455,000

These reductions reflect the full annual pay costs associated with FY 1994 staffing levels, excluding those reductions associated with the proposed buy-out initiative.

The request includes the following pay changes:

Reductions of \$9,385,000, 134 FTP positions, and 134 FTE's for annualization of FY 1994 EOY staffing levels into FY 1995, excluding those reductions associated with the proposed buy-out initiative. Staffing will be lower at the end of FY 1994 than it was at the end of FY 1993. The savings are the result of a lower FTE requirement to support on-board staff in FY 1995.

Savings of \$8,481,000, 101 FTP positions, and 101 FTE's for annualization of employee separations associated with the Administration's proposed buy-out in FY 1994.

\$5,550,000 for annualized pay costs associated with FY 1994 locality pay increase.

\$3,792,000 for new FY 1995 Within Grade Increases.

\$7,549,000 for the full FY 1995 cost of an estimated 1.6 percent January 1995 pay raise.

\$3,802,000 for employee benefits to accommodate changes in work force demographics and increases in the agency's cost of Health Benefits, and FICA (Social Security) over and above the rate of increase for base pay.

Savings of \$2,392,000 due to one less compensable day in FY 1995.

OPERATIONS APPROPRIATION
Maintenance of Traffic Control System

2. Inflation \$3,300,000

Price increases totaling \$3,300,000 are required to meet inflationary needs in such areas as travel, transportation, rents, supplies, contract support and equipment.

MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE 20,748,000

1. Contract Maintenance \$19,448,000

The FAA is currently midway through implementation of a major effort to modernize the NAS. Capital expenditures for modernization of the NAS are made under the Facilities and Equipment (F&E) Appropriation. Once new systems are put in place, the costs of operating and maintaining the systems are covered by the Operations Appropriation. This is in addition to operating and maintenance costs associated with existing systems that have not been replaced or phased out. FAA must continue to cover these costs as new systems are brought on line. Follow-on costs associated with the implementation of new NAS related systems are outlined below:

An increase of \$19,448,000 over an FY 1994 base of \$47,360,000 will provide contractual support for maintenance of NAS facilities and equipment. The contract maintenance program is an essential part of the FAA's NAS equipment maintenance strategy. The FAA currently uses contract maintenance for a number of NAS systems. These contracts are often with the manufacturer of the equipment because they have existing infrastructures for spare parts and supplies, which makes it more cost effective. A number of factors are considered in deciding whether to use contract maintenance and/or in-house staffing. Some of these factors are: the expected life of the system, the level of integration with other NAS systems, and the degree of commercial off-the-shelf (COTS) hardware and software in the system. Generally, contract maintenance is used only as an interim measure to allow time for FAA technicians to be trained and spare parts to be stocked at the FAA Logistics Center for FAA in-house maintenance. However, when the characteristics of particular systems dictate, contract maintenance will be utilized for the full life cycle of a system. Also, in some cases a combination of contract maintenance (contractor supplies and repairs lowest repairable units) and in-house staff will do all other maintenance tasks.

a) \$12,640,000 of the request is to meet maintenance support requirements for: 1) new requirements, i.e., the Pre-Departure Clearance System, and the Host Data Link (HDL); and 2) substantial increases in the number of units being installed for existing requirements, e.g., Integrated Communications Switching System (ICSS), Meteorological Weather Processor System (MWP), maintenance of host computer, Automated Surface Observing System (ASOS), Enhanced Traffic Management System (ETMS), Data Multiplexing Network (DMN), Data Link Processor (DLP), and Maintenance Data Terminal (MDT). It is more cost effective to maintain these systems by contract because they have been built by companies that have existing infrastructures for spare parts and supplies. The increase in contract maintenance will ensure a clean "hand-off" from F&E to operations support so that critical maintenance of these highly complex systems can continue without degradation to safety.

OPERATIONS APPROPRIATION
Maintenance of Traffic Control System

b) \$8,808,000 of the request for contract maintenance is for software maintenance support at the FAA Technical Center (ACT). The Operational Support Service (AOS), at the ACT, is responsible for analyzing and resolving national and system-wide problems in the areas of hardware, firmware and Peripheral Adapter Module Replacement Item (PAMRI) system software. The additional funding will provide: 1) second-level engineering software/hardware support for the AWOS Data Acquisition System (ADAS), Airport Surface Detection Equipment (ASDE), Data Multiplexing Network, Initial Sector Suite System (ISSS), Low Density Radio Communications Link, Model FSAS Full Capacity, MODE Select (Mode-S), Routing and Circuit Restoral System (RCR), and the Systems Support Computer Complex; 2) repair of the DEC computer equipment for the NADIN II (Phase I) network control centers; and 3) continued maintenance support of existing NAS systems (e.g., the Air Route Surveillance Radar (ASR-9), Oceanic Display and Planning System (ODAPS), and the Off-shore Flight Data Processing System).

2. Utility Costs for New CIP Facilities\$1,300,000

An increase of \$1,300,000 will fund utility costs for new CIP facilities being introduced into the NAS. Many of the original NAS Plan projects are now reaching the field for implementation. It is imperative that adequate funding be available, in the Operations Appropriation, for these "NAS Plan Hand-off" facilities. There are approximately 5,000 separate units from about 77 different types of facilities/systems scheduled for delivery in FY 1995. Some of the CIP facilities that will be requiring new utilities funding are: Low Power TACAN Antennas; En Route Stand Alone Radar Training System; and Communication Facilities Expansion.

PROGRAM REDUCTIONS

1. Staffing Reductions-115 FTE positions; -115 FTE's; and -\$35,892,000
-115 FTE positions; -115 FTE's; and -\$8,212,000

An FY 1995 staffing reduction of 115 FTE positions, 115 FTE's, and \$8,212,000 is shown as a result of continuing an agency-wide hiring freeze in all areas except special interest staff. This hiring freeze is an important element of the agency's on going effort to streamline its operations, especially its administrative and support operations, to meet the NPR goals of a more efficient organization. This attrition and early out/buy out authority will hopefully allow the agency to avoid adverse actions in reducing staffing and streamlining the agency. The field maintenance work force will show a net decrease from the FY 1994 end-of-year level due to reorganizing that will result in some Field Maintenance Sector office functions being consolidated. The hiring freeze will be in effect only in the Engineering and PD&E programs.

2. Streamlining ADP Support-\$338,000
 Savings of \$338,000 will be realized by streamlining the support and maintenance of administrative ADP functions in Washington Headquarters, consistent with the NPR-inspired streamlining and reorganization of Headquarters activities.

OPERATIONS APPROPRIATION
Maintenance of Traffic Control System

3. Awards Reduction-\$1,241,000

Savings of \$1,241,000 will be realized by reducing funding for employee recognition awards.

4. Travel-\$3,597,000

Savings of \$3,597,000 are anticipated as a result of agency efforts to re-engineer processes, reassess the frequency of operational travel requirements, and use video conferencing. These savings will represent a 20 percent reduction from the FY 1994 enacted level of \$18,114,000.

5. Pay Demonstration Project-\$2,500,000

The request includes a decrease of \$2,500,000 in the pay demonstration project. These savings result from the expiration of the pay demonstration project. On March 19, 1989, the Office of Personnel Management approved a five-year FAA pay demonstration project to be implemented on June 18, 1989, and expire on June 17, 1994. The objective of this project was to test whether a pay allowance of up to 20 percent would improve the FAA's ability to recruit and retain highly qualified safety personnel at "hard-to-staff" facilities in the New York Chicago, San Francisco, and Los Angeles areas. For the Systems Maintenance program, the project covers 286 field maintenance employees at 7 Airway Facilities Sector locations. Not only is this project scheduled to end in June, but the recent enactment and implementation of locality-based pay adjustments has reduced the need for this program, especially in an era of very tight budget constraints.

6. Facility Leases-\$19,217,000

A reduction of \$19,217,000 reflects the transfer of funds to the Facilities and Equipment (F&E) Appropriation to support operating or capital leases for services, equipment, or facilities used to provide air traffic control services or navigation and landing aids. This transfer is in accordance with FAA Order 2500.8A, "Funding Criteria for Operations, Facilities and Equipment (F&E), and Research, Engineering and Development (R&E) Accounts", dated April 9, 1993.

7. Consolidation of Field Maintenance Sector Office Functions-\$500,000

A saving of \$500,000 will be realized from the consolidation of certain Field Maintenance Sector office functions with Air Route Traffic Control Center Sector office functions. Currently, there are 56 general NAS maintenance sector offices and 21 en route sector offices. Staffing totals about 8,700, including support personnel and maintenance technicians responsible for the maintenance and repair of FAA equipment and facilities. Some of these sector offices are co-located or in close proximity to each other. For example, the Salt Lake City en route sector office (at the en route center) and the Salt Lake City general NAS sector office are only one mile apart. Consolidating

OPERATIONS APPROPRIATION
Maintenance of Traffic Control System

certain NAS sector office functions with en route sector office functions will reduce administrative overhead, streamline functions, and increase efficiency.

8. Tower Decommissionings -\$287,000

The FAA Contract Tower (FCT) Program was originally designed to be the vehicle used for reopening towers that were temporarily closed in the early 1980's due to staffing shortages. Currently, FAA proposes a program to convert all FAA Level I towers that meet FCT criteria for continued operations to contract operation and decommission those that do not meet the FCT criteria for continued operations. The FAA would also decommission temporarily closed towers that do not meet FCT criteria for continuance. Costs savings of \$287,000 are for maintenance of 13 temporarily closed FAA Level I towers that do not meet FCT criteria for continued operations and will be decommissioned. These towers have not, over an extended period of time, met the criteria to justify supporting them on a continual basis.

PROGRAM INCREASES \$4,200,000

1. DOD Base Closures \$2,500,000

\$2,500,000 over a FY 1994 base of \$4,251,960 will provide for the operation and maintenance of Department of Defense (DOD) facilities that the FAA will be required to takeover. Reorganization of DOD has resulted in closure of several military installations. At certain DOD base closure locations, the FAA will be required to operate and maintain DOD facilities that support the NAS (i.e., providing personnel, training and logistics support to service DOD equipment not currently within the FAA inventory). The requested resources will be used for operational requirements identified as a result of the FY 1991 DOD Base Closure List as well as for preliminary planning efforts for FY 1993 and FY 1995 DOD base closures. Air Force bases (AFB) impacted and FY 1995 cost information follow:

- a) Evaluation and Transition Planning, \$2,150,000: The recently announced FY 1993 proposed list of DOD Base Closures will have a major impact on the FAA at eighteen bases with airfields, such as the Naval Air Station (NAS) Agana, NAS Cecil Field, Homestead Air Force Base (AFB), MCAS EL Toro, NAS Barbers Point, and McGuire AFB. Funding is required to provide for site surveys, air space studies, obstruction evaluation studies, radar siting analyses, maintenance training, and for interim operations at these facilities where required. In addition, another list of base closures will be announced in FY 1995 which will require evaluation and transition planning.
- b) Loring AFB, ME (New England Region), \$350,000: This base is scheduled to close on September 30, 1994. Currently, Loring radar approach control (RAPCON) facilities are used to provide approach control services to nearby Presque Isle Airport and air traffic service for aircraft operating in the southern part of Canada. The Boston Air Route Traffic Control Center (ARTCC) has been delegated air traffic control responsibility over the Canadian air space, and the New England Region projects a requirement to continue this

OPERATIONS APPROPRIATION
Maintenance of Traffic Control System

service via the Boston ARTCC. An ARSR-4 radar system to provide radar coverage in the newly acquired airspace is funded in the FY 1994 F&E Appropriation. The additional funding is required to maintain the military equipment after closure.

2. Permanent Change of Station (PCS) Moves\$1,700,000

This increase over a FY 1994 base of \$4,257,000 is required to fund 42 moves. A portion of these moves is for employees exercising their return rights. Once an employee elects to exercise his/her return rights, FAA is required to fund the move. The remainder of the PCS moves is requested for redistribution and/or the relocation of field maintenance technicians.

Maintenance of the NAS is primarily performed by in-house personnel and FAA's ability to effectively deploy an adequate number of technicians for the maintenance, repair and operation of FAA equipment and facilities rests in large part on an adequate level of PCS funding. In FY 1995, PCS funding will become even more critical because vacancies, due to attrition, will require a PCS move to fill.

DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 OPERATIONS APPROPRIATION
 FY 1995 CONGRESSIONAL SUBMISSION
 LEASED TELECOMMUNICATIONS

1057

	DOLLAR RESOURCES (\$000)			STAFFING			
	PC&B	OTHER		FTP POS	FTE LEVEL		OTFTP
		OBJECTS	TOTAL		TOTAL	FTP	
FY 1993 ACTUAL	\$0	\$320,206	\$320,206	0	0	0	0
FY 1994 PROGRAM LEVEL	0	324,529	324,529	0	0	0	0
PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	0	12,885	12,885	0	0	0	0
MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE	0	0	0	0	0	0	0
PROGRAM REDUCTIONS (DISCRETIONARY)	0	(34,029)	(34,029)	0	0	0	0
PROGRAM INCREASES	0	13,602	13,602	0	0	0	0
FY 1995 REQUEST LEVEL	\$0	\$316,987	\$316,987	0	0	0	0

OPS-73

OPERATIONS APPROPRIATIONLeased Telecommunications

For FY 1995, the Leased Telecommunications activity will require \$316,987,000. This represents a net change of -\$7,542,000 below the FY 1994 level for continuation of air traffic control and agency leased telecommunications services.

1. Air Traffic Control Telecommunications

Services provided under this subactivity represent a critical link in the process that begins with identification of a NAS requirement and ends with the commissioning and operation of a new NAS facility. The FY 1995 request for air traffic control telecommunications provides continued support for the following categories:

- a. Costs FAA is required to pay under Federal statute, regulations, or Executive Order. This includes such costs as: inflation; tariff/rate increases approved by the Federal Communications Commission; and non-recurring charges in connection with legislatively mandated recompetition of existing circuits.
- b. Requirements directly related to the operation of NAS equipment in the field. Telecommunications services are required to meet increasing data interchange requirements of new NAS equipment. Cost growth is controlled by aggressive management of the telecommunications program. New NAS systems are continually added and other facilities are changed to provide added functions. The new and changed facilities require new telecommunications services. These new requirements are being fulfilled in part through common transmission and multiplexing systems such as the Leased Interfacility NAS Communications System (LINCOS), Radio Communications Link (RCL), Data Multiplexing Network (DMN), National Airspace Data Interchange Network (NADIN), etc., resulting in a cost avoidance. Projects for which communication costs are required provide a number of different benefits, including improvements in safety, capacity, and efficiency. General categories include:

Telecommunications cost savings/avoidance (e.g., DMN, RCL).

Improved availability/elimination of single point failures (e.g., LINCOS).

Improved maintenance management (e.g., RMMSI).

Improved satellite communications (e.g., ANICS, FAATSAT).

OPERATIONS APPROPRIATIONLeased Telecommunications

Leased telecommunications services for all operational FAA facilities are either procured by or are contracted with:

a. Defense Commercial Communications Office (DECCO)

Air traffic control telecommunications are procured through DECCO. Department of Defense/FAA procurement of leased telecommunications services is unified to effect maximum economies to the Government. Services include: full-time long distance telephone circuits used to transmit messages pertaining to the flow and control of air traffic operating under instrument flight rule weather conditions; circuits from control points to adjacent air navigation facilities; digital data circuits for collection and distribution of weather information and reports which include Notices to Airmen (NOTAMS) concerning runway or other conditions such as inoperative air navigational aids, flight progress reports, and aircraft arrival reports; remote control circuits to connect Air Route Traffic Control Centers (ARTCC's) with remote air-to-ground transmitters and receivers which provide controllers with direct radio communications with ARTCC's; facsimile services to transmit weather information to Flight Service Stations (FSS's); and dedicated circuits at remote towers and FSS's.

b. Aeronautical Radio, Inc. (ARINC)

ARINC provides international air-to-ground communications for the FAA at the following gateway facilities: New York, New York; Miami, Florida; San Francisco, California; and Honolulu, Hawaii. This includes traffic and services pertaining to flight regulations, distress and safety messages, direction finding, meteorological conditions, NOTAMS, and flight information.

c. Major Leased Telecommunications requirements procured through other sources include:

Telecommunications Management and Operations (TM&O) Program. The TM&O program was initiated in 1989 to manage the expanding FAA-owned telecommunications system in order to effectively achieve the projected savings associated with implementation of the Radio Communications Link, National Data Interchange Network, Data Multiplexing Network, and leased telecommunications. Specifically, it entails budgetary planning and execution, network planning, circuit engineering, performance tracking, and database management for these telecommunications systems (contracted through TSC and with private contractors).

OPERATIONS APPROPRIATION

Leased Telecommunications

Operational Communications Database. The Transportation Systems Center (TSC) maintains FAA's Telecommunications Information Management System (TIMS), a fully automated, integrated system for managing FAA's leased and owned telecommunications circuits and equipment. TIMS includes the operation, maintenance and enhancement of the Telecommunications Management System (TELEMS), the Communications Service Request Interactive Retrieval and Update System (CIRUS); and the Telecommunications Service Request (TSR) Tracking System.

2. Agency Telecommunications

This subactivity provides funding for the following FAA-wide services:

- a. Inter-city Federal Telecommunications System (provided through the General Services Administration).
- b. Administrative Data Transmission Network which supports national systems such as the Consolidated Personnel Management Information System (DOT-wide), National Flight Data Center, Personal Property In-Use Management System, Uniform Accounting System (DOT-wide), Uniform Payroll System (DOT-wide), Aviation Safety Analysis System, Health Information System, Civil Aviation Security System, Airports Grants Management System, Logistics Inventory System, Instrument Approach Procedures, Uniform Disposal System, Maintenance Management System, Project Material System, Project Management System, and networking between all regions, centers, the Washington headquarters, Transportation Computer Center, Transportation Systems Center, flight inspection field offices, and four U.S. Coast Guard districts.
- c. Local telephone service, switchboard operations, and commercial long distance tolls.
- d. Facsimile network.
- e. The aviation safety and consumer affairs hotline.

Major initiatives and changes proposed for FY 1995 are summarized below, with details on the following pages.

1. Implementation costs for the Leased Interfacility NAS Communications System (LINCS). LINCS satisfies the Federal Acquisition Regulations requirement to recompete contracts that have been in place 10 years or more and greatly improves the reliability of NAS telecommunications. Transition to LINCS commenced in FY 1992. The funding requested will support the continued implementation of this project.

OPERATIONS APPROPRIATION**Leased Telecommunications**

2. In FY 1996 the Facility and Equipment (F&E) account will fund the non-recurring (installation) costs and recurring leased telecommunications costs for new F&E equipment coming into the system for up to one full fiscal year beyond commissioning/operation. Leased Telecommunications costs for the connectivity of Capital Investment Plan projects such as the Remote Maintenance Monitoring System, Data Multiplexing Network, Mode S, Direction Finder, AWOS Data Acquisition System, Aeronautical Data Link Processor, Next Generation Weather Radar, and Long Range Radar (ARSR-4) are included in the F&E account.

OPERATIONS APPROPRIATIONLeased TelecommunicationsResource Summary (0000)

	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	(Est.) FY 1994	Proposed Change	(Est.) FY 1995
<u>AIR TRAFFIC CONTROL</u>						
<u>TELECOMMUNICATIONS</u>						
DECCO	184,822	226,978	244,380	243,564	2,079	245,643
ARINC	13,087	12,774	13,471	14,198	702	14,900
OTHER	24,852	35,742	30,829	34,864	(10,762)	23,912
<u>AGENCY TELECOMMUNICATIONS</u>	<u>47,298</u>	<u>42,078</u>	<u>31,748</u>	<u>32,103</u>	<u>429</u>	<u>32,532</u>
Total	269,950	317,572	320,206	324,529	(7,642)	316,987

OPERATIONS APPROPRIATIONLeased Telecommunications

The estimate for FY 1995 provides a net reduction of \$7,542,000 below FY 1994. Changes in requirements for FY 1995 follow:

	(\$000)	DECCO	ARINC	OTHER	AGENCY
<u>NON-DISCRETIONARY CHANGES</u>	<u>TOTAL</u>				
1. Inflation	7,951	5963	348	848	787
2. Annualization	4,934	4,580	354	0	0
Subtotal, Non-Discretionary Changes	12,885	10,548	702	848	787

PROGRAM REDUCTIONS

1. FY 1994 non-recurring costs:					
Leased Interfacility NAS Comm System (LINCOS)	(11,116)	(11,116)	0	0	0
Vintage Voice Switch	(6,108)	(6,108)			
NAS Plan Hand-off:					
Alaskan NAS Interfacility Comm Sys (ANICS)	(64)	(64)	0	0	0
Data Multiplexing Network (DMN)	(522)	(522)	0	0	0
Remote Maintenance Monitoring System (RMMS)	(919)	(919)	0	0	0
Voice Switching Control System (VSCS)	(3,276)	(3,276)	0	0	0
National Airspace Data Interchange Network (NADIN)	(66)	(66)	0	0	0
Subtotal, non-recurring reductions	(22,071)	(22,071)	0	0	0
2. Direct User Access Terminal Service (DUATS)	(9,000)	0	0	(9,000)	0
3. Consolidate ADP Support	(358)	0	0	0	(358)
4. Management Efficiency Programs	(2,600)	0	0	(2,600)	0
Subtotal, Program Reductions	(34,029)	(22,071)	0	(11,600)	(358)

PROGRAM INCREASES

1. Leased Interfacility NAS Comm System (LINCOS)	13,602	13,602	0	0	0
Subtotal, Program Increases	13,602	13,602	0	0	0
Total Net Change	(7,542)	(2,079)	702	(10,752)	429

OPERATIONS APPROPRIATION**Leased Telecommunications**

The estimate for FY 1995 provides a net reduction of -\$7,542. Changes in requirements for FY 1995 follow:

NON-DISCRETIONARY INCREASES

1. Inflation	\$12,886,000
Price increases totaling \$7,951,000 are required to meet inflationary needs in such areas as communications, supplies, contract support and equipment.	\$7,951,000
2. Annualization	\$4,934,000
\$4,934,000 will provide annualization of recurring charges funded part-year in FY 1994. These costs are for operational leased telecommunications circuits for new facility commissionings, modernization, and expansion of existing services.	

PROGRAM REDUCTIONS

1. FY 1994 Non-recurring Costs	-\$34,029,000
	-\$22,071,000

The request includes a reduction of \$22,071,000 for savings anticipated due to contract services performed in FY 1994 which will not be required in FY 1995, one-time purchases of supplies and equipment in FY 1994 which will not be required in FY 1995. FY 1994 non recurring costs are as follows:

Leased Interfacility NAS Communications System (LUNCS): -\$11,116,000

Vintage Voice Switches: -\$6,108,000

Alaskan NAS Interfacility Communications System (ANICS): -\$64,000

Data Multiplexing Network (DMN): -\$522,000

Remote Maintenance Monitoring System (RMMS): -\$919,000

Voice Switching Control System (VSCS): -\$3,276,000

National Airspace Data Interchange Network (NADIN): -\$66,000

OPERATIONS APPROPRIATION

Leased Telecommunications

2. Direct User Access Terminal (DUAT) Service-\$9,000,000

The request includes a base reduction of \$9,000,000 due to the termination of the DUAT Service. Automated Flight Service Stations (AFSS) can be accessed by calling an 800 toll-free telephone service or by a local telephone call. The AFSS's are equipped with voice communications switching systems that route telephone calls to the next available pilot weather briefer as users call the AFSS's. Should the number of incoming calls exceed an individual AFSS capacity, calls can be rerouted to other stations. Based on the fact that 85 percent of the pilots who used DUAT also called an AFSS prior to flight, elimination of DUAT will have minimal operational impact. Pilots may augment these services or use a DUAT service exclusively through private industry on a 900 number at a minimal individual charge.

3. Streamlining ADP Support.....-\$358,000

Savings of \$358,000 will be realized by streamlining the support and maintenance of administrative ADP functions in Washington headquarters, consistent with the NPR-inspired streamlining and reorganization of headquarters activities.

4. Management Efficiency Programs-\$2,600,000

Savings of \$2,600,000 will be realized through the purification of existing telecommunications data bases and the conduct of nationwide circuit validation surveys to eliminate outdated or unnecessary circuits and services.

PROGRAM INCREASES

1. Leased Interfacility NAS Communications System (LINCS) \$13,602,000

LINCS satisfies requirements for (1) recompetition of circuits, (2) elimination of single point failures with improved access, and (3) improved technical performance. The Leased Interfacility NAS Communications System will replace virtually all existing dedicated leased operational circuits. Contract award was made to MCI Telecommunications Corporation on March 13, 1992. The backbone interconnecting all of the air route traffic control centers was completed in October 1993. The additional funding is required for the continued implementation of this project. Full implementation is anticipated in FY 1996 provided adequate funding is appropriate. The performance and cost benefits associated with LINCS cannot be realized until all operational circuits have been transitioned.

OPERATIONS APPROPRIATIONLeased Telecommunications

<u>Planned Implementation of LINCSS</u>	(\$ Million)	
	<u>Prior Years Actual</u>	<u>FY 95</u>
• Establishment of nodes 123 FAA Locations	35.0	
• Installation/implementation of channels 5,000 channels 5,500 channels	10.4	11.4
• Transition from existing to new services (up to one month overlapping service) 5,000 channels 5,500 channels	1.0	1.2
• Customer Premise Equipment (CPE) Modifications	0	1.0
TOTAL	46.4	13.6
<u>Appropriated/Requested</u>		
FY 1992 Program	14.9	
• Non-recurring costs	-13.7	
• Recurring Costs (Base for FY 1993)	+7.8	
FY 1993 Program	9.0	
• Non-recurring costs	-7.6	
• Recurring costs (Base for FY 1994)	1.4	
FY 1994 increase	11.4	
FY 1994 Program	12.8	
• Non-recurring costs	-11.1	
• Recurring costs (Base for FY 1995)	1.7	
FY 1995 increase	13.6	
FY 1995 Program	15.3	

DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 OPERATIONS APPROPRIATION
 FY 1995 CONGRESSIONAL SUBMISSION
 AVIATION REGULATION AND CERTIFICATION

	DOLLAR RESOURCES (\$000)			STAFFING			
	PC&B	OTHER OBJECTS	TOTAL	FTP POS	FTE LEVEL		
					TOTAL	FTP OTFTP	
FY 1993 ACTUAL	\$295,179	\$40,714	\$335,893	5,420	4,384	4,316	68
FY 1994 PROGRAM LEVEL	305,361	42,031	347,392	5,350	4,319	4,251	68
PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	811	660	1,471	(85)	(86)	(86)	0
MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE	0	0	0	0	0	0	0
PROGRAM REDUCTIONS (DISCRETIONARY)	(1,407)	(2,709)	(4,116)	(1)	(1)	(1)	0
PROGRAM INCREASES	12,165	3,053	15,218	0	153	153	0
FY 1995 REQUEST LEVEL	\$316,930	\$43,035	\$359,965	5,264	4,385	4,317	68

OPERATIONS APPROPRIATION

Aviation Regulation and Certification

General Justification

For FY 1995, the operation of the Aviation Regulation and Certification Program will require 5,264 FTP positions, 4,365 FTE's, and \$359,965,000. This represents a decrease of 87 FTP's and an increase of \$12,573,000 or 3.6% over the FY 1994 level of \$347,392,000 and a net increase of 66 FTE's.

The Aviation Regulation and Certification Program includes the development, promulgation, and administration of the safety standards, rules, and regulations applicable to airmen, aircraft, and operations involved in all United States civil aviation throughout the world, and foreign operations into and over United States territory.

Flight Standards

This subactivity covers the cost of certification and inspection activities associated with the operation and maintenance of aircraft by air carriers and the general aviation community, air agencies and all airmen (i.e. pilots, mechanics, etc.). With regard to air carriers, inspectors check qualifications of pilots and other airmen through flight tests and written examinations, and exercise continuing surveillance over enroute operations, training programs, and maintenance shops and procedures. In the general aviation area, appropriate practical and written examinations, flight tests, and surveillance are provided pilots and mechanics. Surveillance is also maintained over air taxi operations, fixed-based operators, aerial applicators (agricultural uses), training schools, and repair stations to determine that operations and maintenance are in conformance with safety regulations.

Aircraft Certification

Included within this subactivity are the costs associated with development and administration of safety standards governing the type, production, and original air worthiness certification of aircraft, engines, propellers, appliances, and noise level certification. The FAA's responsibility in this area begins with the development of standards and continues with the evaluation of specific product designs and manufacturing systems throughout the engineering design and flight test phases. These evaluations result in the Aircraft Certification Service issuing various certificates such as type, production, and ultimately air worthiness certificates to the aviation community. The FAA's responsibilities extend to the approval of quality control procedures for production, the determination that each product is of the proper

OPERATIONS APPROPRIATION**Aviation Regulation and Certification**

configuration for safe operations, and the assurance that corrections are made for any difficulties encountered in actual service. Manufacturing and engineering systems are periodically accessed to assure continued compliance, quality, and ultimately, product safety. The Service also works closely with Flight Standards in evaluating airline and repair station operations to assure continued compliance with all applicable regulations and standards.

Planning, Direction and Evaluation

The overall planning, direction, management, and evaluation of the Aviation Regulation and Certification activities, as well as development of safety regulations are accomplished under this subactivity.

OPERATIONS APPROPRIATION Aviation Regulation & Certification

Workload Measures

Activity	Volume of Activity				Percent Change		
	Actual 1992	Actual 1993	Est. 1994	Est. 1995	1992 1993	1993 1994	1994 1995

Flight Standards

Airmen Certification	283,159	283,058	282,928	243,189			
Operator Certification	79,479	79,401	78,759	78,122	0.0%	-3.9%	-3.9%
Investigations	36,111	32,876	31,663	29,230	-0.1%	-0.8%	-0.8%
Inspections	389,555	395,175	393,605	392,040	-9.5%	-3.1%	-7.7%
Enforcement	12,680	10,785	10,777	11,480	1.4%	-0.4%	-0.4%
					-14.9%	-0.1%	6.5%

Aircraft Certification

<i>Public Service Indicators</i>							
<i>Operational Safety</i>							
Certificated Aircraft Types in Operation	1,056	1,056	1,056	1,076	0.0%	0.0%	1.9%
Airworthiness Directives Issued	348	386	386	386	10.9%	0.0%	0.0%
Active Prime Aircraft Manufacturers with Certified Production Quality Assurance Systems	88	97	97	100	10.2%	0.0%	3.1%
Active Manufacturers of Aircraft Materials, Parts and Appliances with Certified Production Quality Assurance Sys.	1,333	1,522	1,530	1,540	14.2%	0.5%	0.7%
Active Representatives of the Administrator Active Organizations Holding Delegated Authority to Represent the Administrator	3,183	3,470	3,634	3,800	9.0%	4.7%	4.6%
Accidents and Major Incidents Investigated National Transportation Safety Board Recommendations Closed	77	94	98	100	22.1%	4.3%	2.0%
	138	149	182	182	8.0%	2.0%	0.0%
Airline and Maintenance Facility Audits and Inspections Supported	40	37	39	41	-7.5%	5.4%	5.1%
Compliance and Enforcement Cases Closed	29	38	43	45	31.0%	13.2%	4.7%
Freedom of Information Act Requests Answered	75	79	80	82	5.3%	1.3%	2.5%
	298	340	358	365	14.1%	5.3%	2.0%

OPERATIONS APPROPRIATION

Aviation Regulation & Certification

Workload Measures

Activity	Volume of Activity				Percent Change		
	Actual	Actual	Est.	Est.	1992	1993	1994
	1992	1993	1994	1995	1992	1993	1994
<i>Regulatory Policy Development</i>							
Regulatory Amendments Issued	35	37	38	40	6.7%	2.7%	6.3%
Policy and Guidance Documents Issued	27	42	46	46	55.6%	9.5%	0.0%
<i>New Certifications, Approvals, and Appointments</i>							
New Aircraft, Aircraft Engine, and Propeller Designs Certificated	91	92	94	97	1.1%	2.2%	3.2%
Significant Aircraft, Aircraft Engine and Propeller Design Modifications Certificated	1,192	1,355	1,416	1,470	13.7%	4.5%	3.8%
Design Approvals for New Aircraft Materials, Parts, and Appliances	4,525	6,211	6,300	6,500	37.3%	1.4%	3.2%
New Prime Manufacturers Production Quality Assurance Systems Certificated	10	12	13	15	20.0%	8.3%	15.4%
New Production Quality Control Systems Approved for the Manufacture of Materials, Parts, and Appliances	138	200	220	240	44.9%	10.0%	9.1%
New Organizations Granted New Delegation of Authority to Function as Representatives to the Administrator	11	20	24	27	81.8%	20.0%	12.5%
New Delegations of Authority Granted to Individuals to Function as Representatives to the Administrator	524	540	560	580	3.1%	3.7%	3.6%
Airworthiness Certificates Issued	3,106	3,380	3,417	3,426	8.8%	1.1%	0.3%

Rulemaking

Exemptions	344	488	400	400	41.9%	-18.0%	0.0%
Petitions for Rulemaking	20	37	35	35	85.0%	-5.4%	0.0%
Notices	15	21	28	28	40.0%	33.3%	0.0%
Rules	25	24	30	30	-4.0%	25.0%	0.0%
Rules & Notices Review (Moratorium)	69	0	0	0	100.0%	-100.0%	0.0%

OPERATIONS APPROPRIATIONAviation Regulation and Certification

Aviation Safety Field Inspectors and Support Personnel

	FY 1993 Actual		FY 1994 Estimated		FY 1995 Request	
	AUTH Pos.	EOY Empl.	AUTH Pos.	EOY Empl.	AUTH Pos.	EOY Empl.
General Aviation Inspectors	1,834	1,380	1,822	1,348	1,795	1,462
Air Carrier Inspectors	1,324	1,043	1,312	1,019	1,293	1,106
Total, Aviation Safety Inspectors	3,158	2,423	3,134	2,367	3,088	2,568
Other Technical Safety	445	425	429	416	419	406
Administrative/Clerical	745	532	735	520	724	560
Total, Flight Standards Program	4,349	3,381	4,298	3,303	4,231	3,534

NOTE: Technical personnel perform a variety of safety-related, nonadministrative work. They provide vital expertise evaluating flight procedures and obstruction clearance; developing regulations; managing research on all weather operations, human factors, and state-of-the-art avionics; assessing the operational impact of new NAS technologies; providing technical guidance on air carrier operations, maintenance, certification, surveillance, and enforcement; and overseeing the Accident Prevention Program.

OPERATIONS APPROPRIATION
Aviation Regulation and Certification
Staffing Information

	Actual FY 1989	Actual FY 1990	Actual FY 1991	Actual FY 1992	Actual FY 1993	(Est.) FY 1994	Proposed Change	(Est.) FY 1995
<u>FTP Positions</u>								
Flight Standards	3,374	3,795	4,216	4,352	4,349	4,298	(87)	4,231
Aircraft Certification	823	863	926	1,020	1,025	1,007	(17)	990
PD&E*	118	120	45	45	45	45	(2)	43
TOTAL	4,315	4,798	5,187	5,417	5,420	5,350	(86)	5,264
<u>Direct FTE's</u>								
Flight Standards	2,948	3,265	3,441	3,553	3,472	3,413	49	3,462
Aircraft Certification	733	757	812	846	868	863	20	883
PD&E*	73	102	38	41	44	43	(3)	40
TOTAL	3,754	4,124	4,291	4,442	4,384	4,319	66	4,385
<u>End-of-Year Employment</u>								
Flight Standards	3,193	3,479	3,571	3,481	3,381	3,303	231	3,534
Aircraft Certification	751	806	854	837	845	826	74	900
PD&E*	96	101	40	40	40	39	(1)	38
TOTAL	4,040	4,386	4,465	4,358	4,266	4,168	304	4,472

* FY 1988-1990 reflects PD&E data prior to a reorganization which decentralized the PD&E functions.

OPERATIONS APPROPRIATIONAviation Regulation and CertificationResource Summary (\$000)

	Actual FY 1989	Actual FY 1990	Actual FY 1991	Actual FY 1992	Actual FY 1993	(Est.) FY 1994	Proposed Change	(Req) FY 1995
Flight Standards								
PC&B	154,028	180,637	203,702	223,717	234,422	242,510	9,466	251,976
O.O	22,725	29,867	31,859	29,488	29,772	31,635	774	32,309
Total	176,753	210,504	235,561	253,205	264,194	274,045	10,239	284,284
Certification								
PC&B	39,979	43,840	49,716	55,541	58,000	59,862	2,348	62,210
O.O	6,015	7,741	8,354	10,347	8,834	8,464	239	8,703
Total	45,994	51,581	58,070	65,888	66,834	68,328	2,587	70,913
Planning, Direction and Evaluation								
PC&B	5,241	5,992	1,699	2,444	2,755	2,989	(244)	2,745
O.O	13,228	13,938	2,552	2,198	2,110	2,032	[9]	2,023
Total	18,470	19,930	4,251	4,642	4,865	5,021	(263)	4,768
TOTAL								
PC&B	199,248	230,469	265,117	281,702	295,177	305,361	11,569	316,930
O.O	41,968	51,646	42,765	42,033	40,716	42,031	1,004	43,035
Total	241,217	282,015	297,882	323,735	335,893	347,392	12,673	359,965

*FY 1988-1990 reflects PD&E data prior to a reorganization which decentralized the PD&E functions

OPERATIONS APPROPRIATION

Aviation Regulation & Certification

The estimate for FY 1996 provides a reduction of 88 FTE's, and a net change of \$12,573,000 and 55 FTE's over FY 1994. Changes in the requirements for FY 1995 follow:

	(\$000)	Flight Standards	Aircraft Certification	Planning, Direction & Evaluation
<u>NON-DISCRETIONARY CHANGES</u>				
1 Mandatory Pay Adjustments (Net)	763	893	22	(152)
2 Inflation	708	540	155	13
Subtotal, Non-Discretionary Changes	1,471	1,433	177	(139)
<u>PROGRAM REDUCTIONS</u>				
1 Staffing Reductions	(77)	0	0	(77)
2 Streamlining ADP Support	(65)	(30)	(3)	(22)
3 Awards Reduction	(630)	(488)	(127)	(15)
4 Travel	(1,164)	(783)	(371)	0
5 Offset-Increase in Foreign Repair Fees	(1,500)	(1,500)	0	0
6 Pay Demonstration Project	(700)	(700)	0	0
Subtotal, Program Decreases	(4,115)	(3,501)	(501)	(114)
<u>PROGRAM INCREASES</u>				
1 PCS Moves	3,000	3,000	0	0
2 FTE Staffing Increase	12,218	9,307	2,911	0
Subtotal, Program Increases	16,218	12,307	2,911	0
TOTAL RECOMMENDED CHANGE	12,573	10,239	2,587	(253)

OPERATIONS APPROPRIATION

Aviation Regulation and Certification

The estimate for FY 1995 provides a decrease of 86 FTP's and a net increase of 66 FTE's and \$12,573,000. Changes in requirements for FY 1995 follow:

NON-DISCRETIONARY CHANGES (Net)..... -85 FTP's; -86 FTE's; \$1,471,000

1. Mandatory Pay Adjustments (Net) -85 FTP's; -86 FTE's; \$783,000

These changes reflect the full annual pay costs associated with FY 1994 end-of-year on-board staffing due to the effects of the FY 1994 agency-wide hiring freeze, the proposed early retirement and voluntary separation initiative payment, and other mandatory pay changes.

The request includes the following pay changes:

Reduction of \$7,183,000 and 85 FTP's for annualization of FY 1994 EOY staffing levels into FY 1995, excluding those separations associated with the proposed buy-out initiative. The savings are the result of a lower FTE requirement to support on board staff in FY 1995.

\$2,679,000 for annualized pay costs associated with FY 1994 locality pay increase.

\$1,896,000 for new FY 1995 Within Grade Increases.

\$3,643,000 for the full FY 1995 cost of an estimated 1.8 percent January 1995 pay raise.

\$854,000 for employee benefits to accommodate changes in workforce demographics and increases in the agency's cost of Health Benefits, and FICA (Social Security) over and above the rate of increase for base pay.

Savings of -\$1,156,000 due to one less compensable day in FY 1995.

OPERATIONS APPROPRIATION

Aviation Regulation and Certification

2. Inflation\$708,000
 Price increases totaling \$708,000 are required to meet inflationary needs in such areas as travel, transportation, rents, supplies, contract support and equipment.
- PROGRAM REDUCTIONS**.....-1 FTP; -1 FTE; -\$4,116,000
 -1 FTP; -1 FTE; -\$77,000
 1. Staffing Reduction.....-1 FTP; -1 FTE; -\$77,000
 An FY 1995 staffing reduction of 1 FTP, 1 FTE and \$77,000 is shown as a result of continuing an agency-wide hiring freeze where necessary. This hiring freeze is an important element of the agency's on-going effort to streamline its operations, especially its administrative and support operations, to meet the NPR goals of a more efficient organization. This attrition and early out/buyout authority will hopefully allow the agency to avoid adverse actions in reducing staffing and streamlining the agency. The Flight Standards and Certification activities will be exempt from the FY 1995 hiring freeze and will be allowed to backfill for attrition. The freeze will be in effect only in the PD&E program and, as such, these estimated reductions are based solely on PD&E staffing.
 2. Streamlining ADP Support-\$55,000
 Savings of \$55,000 will be realized by streamlining the support and maintenance of administrative ADP functions in Washington Headquarters, consistent with the NPR-inspired streamlining and reorganization of Headquarters activities.
 3. Awards Reduction-\$630,000
 Savings of \$630,000 will be realized by reducing the funding for employee recognition awards.
 4. Travel.....-\$1,154,000
 Savings of \$1,154,000 are anticipated as a result of agency efforts to re-engineer processes, reassess the frequency of operational travel requirements, and use video conferencing. These savings represent a 7 percent reduction from the FY 1994 enacted level of \$12,025,000.

OPERATIONS APPROPRIATION

Aviation Regulation and Certification

5. Offset-Increase in Foreign Repair Fees.....-\$1,500,000

Offset savings of \$1,500,000 for Foreign Repair Station Fees are expected to be credited to the Operations appropriation as a result of certification fees anticipated to be collected during FY 1995. This is consistent with the National Performance Review's recommendation: "to ensure full cost recovery, increase the fees charged for certification and surveillance of foreign aircraft repair stations." During FY 1993, these collections amounted to \$542,968 and in FY 1994, these collections are estimated to be between \$500,000 and \$600,000.

6. Pay Demonstration Project.....-\$700,000

The request includes a base reduction of \$700,000 due to the termination of the pay demonstration project. On March 19, 1989, the Office of Personnel Management approved a five-year FAA pay demonstration project to be implemented on June 16, 1989, and expire on June 17, 1994. For the Aviation Regulation and Certification Program, the program covered approximately 140 flight standards inspectors at 4 flight standards district offices: Los Angeles, New York, Farmdale, and Teterboro. Not only is this project scheduled to end in June, but the recent enactment and implementation of locality-based pay adjustments has reduced the need for this program especially in an era of very tight budget constraints.

PROGRAM INCREASES 153 FTE's: \$15,216,000

1. PCS Moves \$3,000,000

An increase of \$3,000,000 is required over a base of \$1,000,000 for Permanent Change of Station (PCS) moves for the Flight Standards program to correct current imbalances in the distribution of the Inspector workforce at Flight Standards District Offices. The \$3 million request will fund 60 moves at an average cost of \$50,000 per move, an amount which is consistent with FY 1992 and FY 1993 costs. This re-deployment of personnel will ensure that the proper mix of inspectors (i.e. operations, maintenance, and avionics) needed to handle the certificate workload, measured by the staffing standards, in each office is realized. The Flight Standards Service is committed to use analytical tools such as staffing standards, productivity and performance measurement data from the Program Tracking and Reporting Subsystem and other data bases, as well as the most recent Survey Feedback Action, data to channel personnel where they are needed the most.

2. Flight Standards and Aircraft Certification Staffing Increase..... 153 FTE's: \$12,216,000

OPERATIONS APPROPRIATION

Aviation Regulation and Certification

An Increase of 153 FTE's (116 FTE's--Flight Standards; 37 FTE's--Aircraft Certification) and \$12,216,000 for PC&B and associated costs is required to begin to meet staffing requirements identified through a revalidation of staffing standards. The 153 FTE's result from an increase of 305 positions in the end-of-year employment levels (231--Flight Standards; 74--Aircraft Certification). Consistent with the findings and recommendations contained in the report being prepared for Congress on Aviation Safety Inspector Staffing requirements and in various OIG and GAO reports. These reports identified staffing deficiencies in inspectors and their direct support. To maintain the effectiveness of the Aviation Regulation and Certification workforce, the requirement for additional FTE's and end of year staffing will bring employment more in line with the recently revised staffing standards and will allow the FAA to keep current with its certification and inspection responsibilities. In addition, the increase will be used to conduct expanded periodic regulatory reviews recommended by the National Performance Review and the Airline Commission Study.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
FY 1995 CONGRESSIONAL SUBMISSION
AVIATION STANDARDS

	DOLLAR RESOURCES (\$000)			STAFFING			
	PC&B	OTHER OBJECTS	TOTAL	FTP POS	FTE LEVEL		
					TOTAL	FTP OT/FTP	
FY 1993 ACTUAL	\$71,144	\$49,442	\$120,586	1,414	1,258	1,225	33
FY 1994 PROGRAM LEVEL	73,544	41,874	115,418	1,341	1,242	1,223	19
PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	(481)	448	(33)	(45)	(45)	(45)	0
MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE	0	3,000	3,000	0	0	0	0
PROGRAM REDUCTIONS (DISCRETIONARY)	(981)	(5,462)	(6,443)	(12)	(12)	(12)	0
PROGRAM INCREASES	0	0	0	0	0	0	0
FY 1995 REQUEST LEVEL	\$72,082	\$39,860	\$111,942	1,284	1,185	1,166	19

OPERATIONS APPROPRIATION

Aviation Standards

General Justification

For FY 1995, the operation of the Aviation Standards program will require 1,284 FTP positions, 1,185 FTE's, and \$111,942,000. This represents a net change of -\$3,476,000 from the FY 1994 appropriated level of \$115,418,000 and a decrease of -57 positions and -57 FTE's from the FY 1994 level.

Aviation Standards ensures safety and serves the public and the FAA by operating programs and establishing standards related to aviation medicine, flight operations and procedures, and accident investigation. Aviation safety is promoted through this activity by assuring the adequacy of flight procedures and air operations and the evaluation of in-flight performance for compliance with prescribed standards. Monitoring signal accuracy emitted by the aids to air navigation, development of flight procedures for use of United States civil and military aviation and foreign air carriers operating in this country, and registration and recordation of airman and aircraft certificates are also accomplished through this program. Aviation safety is further promoted by coordinating and participating in accident investigations and assuring completion of resulting follow-up actions. Aviation safety is improved by ensuring the health of airmen; ensuring drug-and-alcohol-free aviation workforces and eliminating drug use and abuse in commercial aviation; promoting education programs; improving the FAA workforce effectiveness through healthful work environments for both agency employees and within the aviation industry; and ensuring standardization, compliance and consistency among all regions regarding ATCS and employee health standards for safety-related positions.

Flight Program and Management of Aircraft

This subactivity contains resources for operating costs such as fuel and line maintenance of the FAA-owned and leased aircraft, major maintenance of the FAA-owned aircraft, flight crews required to perform flight inspection and procedure functions, flight procedures specialists, flight inspection data analysis, and personnel associated with the management of aircraft. The types of aircraft operated range from relatively simple single-engine rental aircraft to long-range multi-engine aircraft. These aircraft are used to support the following programs:

- Flight Inspection - provides in-flight inspection and evaluation of air navigation aids and instrument flight procedures to ascertain or verify that the aids and procedures meet established tolerances and provide safe operations for their intended use. The aircraft assigned to this program activity are normally special purpose aircraft.
- Training - pertains to all flights and flight-hours directly related to formal training courses, including instructor qualifications, standardization and recurrency training. All training is accomplished in FAA-owned, leased, or rented aircraft and simulators

OPERATIONS APPROPRIATION

Aviation Standards

(Including contracted training flight hours). Only those organizations providing approved training courses are authorized the use of aircraft for this purpose.

- Research and Development - pertains to all flights directly related to research, development, and evaluation of new electronic aids, air traffic procedures, aircraft improvement, aviation medical research, etc., under established R&D projects.
- Support (formerly the Evaluation, Currency, and Transportation (ECT) Flight Program) - provides the FAA headquarters, centers, regions, designated elements of the Office of Aviation System Standards, and the Europe, Africa, and Middle East Offices with the following functions:

- 1) Evaluation - Any work assignment which requires the use of an aircraft to perform the assigned job function. Evaluation flights include evaluation of NAS programs, NAS systems, personnel, aircraft, equipment, and procedures.
- 2) Recent Flight Experience (Currency) - Recent flight experience is that flight time logged by flight crew member participants in order to become or remain fully qualified to operate FAA aircraft as pilots-in-command (PIC), seconds-in-command (SIC) or flight engineers (FE) in accordance with the requirements of FAR Part 61 and FAA Order 4040.9.
- 3) Proficiency, Qualification, and Standardization - Flight time required to maintain skills through practice of flight maneuvers, emergency procedures, instrument approaches, check flights, etc.
- 4) Transportation - Flight time expended in the movement of people and cargo from point to point in the accomplishment of specific Government requirements. The FAA policy provides aircraft and crew for the National Transportation Safety Board in responding to major transportation accidents and natural disasters. Other government agencies occasionally require the use of agency aircraft and crews on a reimbursable basis.

OPERATIONS APPROPRIATIONAviation StandardsRecords Servicing and Analysis

This subactivity contains resources which support the following:

- design, development, management, and operation of the national/agency-wide comprehensive systems for the registration of U.S. civil aircraft; and recordation of conveyances and encumbrances affecting title to or interest in aircraft, engines, propellers, and air carrier spare part locations; and the maintenance of all related official aircraft records for the agency.
- development of national regulatory standards and procedures relating to civil aircraft registration and recordation design, development, management, and operation of the national agency-wide comprehensive systems for the review and issuance of airman certificates and ratings; and the maintenance of all related official airman records for the agency.

Emphasis has been placed on modernizing the Airman and Aircraft Registry due to requirements legislated by the FAA Drug Enforcement Assistance Act of 1988 (Public Law 100-690).

Aviation Medicine

This subactivity provides resources for staffing and operating FAA's aviation medical program. This program focuses on medical issues and occupational health responsibilities as they relate to the National Airspace System for both the aviation industry and the FAA.

The objective of the Airman Medical Certification System is to improve aviation safety by ensuring the health of airmen. Through this program the agency ensures that medical certificates are issued only to medically qualified airmen. There are approximately 6,000 Aviation Medical Examiners (AME's), most of whom are physicians in private practices, who give physical examinations to detect medical conditions which could incapacitate or otherwise adversely affect pilot performance. AME's are selected, designated, and trained to conduct FAA medical examinations of civil airmen throughout the United States and abroad. These AME's conduct more than 500,000 physical examinations of pilots and air traffic control specialists (ATCS's). Oversight through the Aviation Medical Examiner Program ensures that qualified physicians learn and stay current on airman medical certification standards, the examination procedures, and FAA policies and regulations. The AME is an indispensable part of the safety program and must be kept informed of new developments, regulations, and procedures. The FAA maintains quality control through the conduct of periodic AME seminars in locations around the country. The FAA was directed beginning in FY 1994, to initiate a program to charge reasonable user fees for attendance at the seminars; however, a fee system for these AME seminars has not yet been implemented, pending determination by General Counsel of whether rulemaking action is required.

OPERATIONS APPROPRIATION

Aviation Standards

The Occupational Health Program includes health and safety oversight of the commercial aviation industry and the occupational health program for agency employees. Included in the Occupational Health Program is the ATCS Health Program which ensures that ATCS's meet and maintain prescribed medical fitness standards. Each ATCS undergoes periodic examinations by FAA physicians or specifically designated AME's. Medical field offices, located at large FAA facilities such as the Mike Monroney Aeronautical Center and Air Route Traffic Control Centers, are essential to ensure regional standardization, compliance, and consistency for ATCS's and employee health standards for safety-related positions. The field offices also provide geographic oversight and audit capability for the AME program. A comprehensive employee health program protects and promotes the health of all FAA employees.

The Environmental Health Program initiatives improve the FAA work force effectiveness by providing a healthful work environment for agency employees and by promoting a similar environment for the aviation industry. Through this program, the agency identifies and recommends abatement of hazardous working conditions to protect FAA employees and to keep the FAA in compliance with the regulatory requirements of agencies such as the Occupational Safety and Health Administration and the Environmental Protection Agency.

The Aviation Industry Substance Abuse Program promotes a drug- and alcohol-free aviation work force and the elimination of drug use and abuse in commercial aviation. This program requires specified aviation industry employers, including air carriers, to implement drug abatement programs. It requires urine testing of safety- and security-related employees or applicants for five types of drugs. It also requires pre-employment, pre-appointment, periodic, random, reasonable cause, post accident, and return-to-duty tests. The alcohol misuse prevention program, mandated by the Omnibus Transportation Employee Testing Act of 1991, requires the transportation industry to test employees in safety-sensitive functions for alcohol misuse.

The FAA Employee Drug and Alcohol Program was established to ensure a substance-abuse free Federal workplace. The FAA requires drug tests for employees in and applicants for safety-sensitive positions including ATCS's, safety inspectors, civil aviation security specialists, airway facilities technicians, and FAA pilots. Other employees may be subject to testing on reasonable suspicion or following an accident. The FAA anticipates that the alcohol testing will begin this fiscal year on these same FAA employees.

The Aeromedical Education Program promotes aviation safety through programs that ensure that FAA-designated AME's receive the proper training and information to effectively examine and medically certify airmen; by promoting non-regulatory concepts that are significant to the health of pilots; by providing educational activities which are generally directed towards classic concepts in flight physiology, aviation psychology, and aeromedical support; and by providing airmen physiological training, medical education through safety and accident prevention seminars, survival training, and other instruction.

OPERATIONS APPROPRIATION

Aviation Standards

Through the Accident Investigation Program, the Office of Aviation Medicine (AAM) participates in selected investigations of general aviation and air carrier accidents. Working in conjunction with the National Transportation Safety Board and the Office of Accident Investigation, AAM provides scenario reconstruction and toxicological services. The medical doctors make a determination of accident causation, including evidence of disease and chemical abuse. AAM's medical investigation of aircraft accidents/incidents results in collection of accident data for analysis in selected aviation populations focused on enhanced survivability.

Planning, Direction and Evaluation

This subactivity includes Aviation Standard's top level management and staff personnel who manage, direct and evaluate the day-to-day activities of the organization. It also includes personnel in the Office of Accident Investigation.

The prime responsibility of the Accident Investigation organization is on-scene investigation of major/significant aircraft accidents to identify accident causal factors and/or safety deficiencies. These investigations are performed nationally and internationally in conjunction with the National Transportation Safety Board (NTSB). The Accident Investigation staff, beyond investigating accidents, is responsible for assuring that the safety issues identified by the FAA and NTSB safety recommendation programs are addressed and maintaining the agency's aircraft accident/incident information database.

OPERATIONS APPROPRIATIONAviation StandardsResource Summary (\$000)

	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	(Est.) FY 1994	Proposed Change	(Est.) FY 1995
Flight Program & Management of Aircraft -						
PC&B	38,229	42,105	44,621	45,251	(943)	44,308
O.O.	35,471	37,748	35,126	32,174	(1,961)	30,213
Total	73,700	79,853	79,747	77,425	(2,904)	74,521
Records Servicing and Analysis						
PC&B	3,608	4,773	5,206	5,592	(115)	5,477
O.O.	1,761	1,943	1,963	1,375	280	1,655
Total	5,369	6,716	7,169	6,967	165	7,132
Medical -						
PC&B	12,375	14,274	17,735	18,624	(128)	18,496
O.O.	7,623	8,642	11,011	7,034	(252)	6,782
Total	19,998	22,916	28,746	25,658	(380)	25,278
Planning, Direction and Evaluation -						
PC&B	2,306	3,348	3,582	4,077	(276)	3,801
O.O.	3,463	2,190	1,342	1,291	(81)	1,210
Total	5,769	5,538	4,924	5,368	(357)	5,011
TOTAL						
PC&B	56,518	64,500	71,144	73,544	(1,462)	72,082
O.O.	48,318	50,523	49,442	41,874	(2,014)	39,860
Total	104,836	115,023	120,586	115,418	(3,476)	111,942

OPERATIONS APPROPRIATIONAviation StandardsStaffing InformationFTE Positions

	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	(Est.) FY 1994	Proposed Change	(Est.) FY 1995
Flight Program & Management of Aircraft.....	779	778	776	735	(32)	703
Records Servicing and Analysis.....	141	210	207	192	(8)	184
Medical.....	267	368	387	366	(15)	351
Planning, Direction & Evaluation.....	41	42	44	48	(2)	46
TOTAL	1,228	1,396	1,414	1,341	(57)	1,284

Ceiling FTE's

Flight Program & Management of Aircraft.....	708	735	730	724	(32)	692
Records Servicing and Analysis.....	106	139	143	142	(8)	134
Medical.....	266	282	338	325	(12)	313
Planning, Direction & Evaluation.....	44	45	47	51	(5)	46
TOTAL	1,124	1,201	1,258	1,242	(57)	1,185

OPERATIONS APPROPRIATIONAviation StandardsStaffing InformationEnd of Year Employment

	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	(Est.) FY 1994	Proposed Change	(Est.) FY 1995
Flight Program & Management of Aircraft.....	728	739	722	687	(16)	671
Records Servicing and Analysis....	139	141	142	135	(3)	132
Medical	261	291	317	302	(7)	295
Planning, Direction & Evaluation	41	44	43	41	(1)	40
TOTAL	1,169	1,215	1,224	1,165	(27)	1,138

FY 1994 and 1995: reductions in FTE's, FTP's and EOY reflect early out and hiring freeze projections.

EOY FY 1993 reflects 2 FTP's transferred to PD&E from Registry (transfer internal to AVS); 19 FTP's and 21 FTE's from HRM to Medical for Drug Program.

FY 1992 Medical reflects transfer of one FTP to HRM.

OPERATIONS APPROPRIATION
Aviation Standards

AIRCRAFT FLEET
(End of Year Totals)

TYPE OF AIRCRAFT

NO. OF ENGINES
& ENGINE TYPE

ESTIMATE
9/30/95

ESTIMATE
9/30/94

ACTUAL
9/30/93

1. 1. FAA Owned -

a. Flight Inspection and Logistics

Rockwell Int'l Sabre 40
Rockwell Int'l Sabre 80
Convair CV-580
Beech BE-300
Beech F-90
British Aerospace 800A
Lear Jet LR 60 (MSR)

2 Jet
2 Jet
2 Turboprop
2 Turboprop
2 Turboprop
2 Jet
2 Jet

1
5
2
19
2
6
0
35

0
2
0
18
2
6
1
29

b. Support

Grunman G-159 a/
Beech C-90
Douglas DC-3
Gulfstream IV a/

2 Turboprop
2 Turboprop
2 Piston
2 Jet

1
5
1
1
8

1
5
0
1
7

c. Training

Douglas DC-9
Beech F-90

2 Jet
2 Turboprop

1
2
3

0
0
0

OPERATIONS APPROPRIATION

Aviation Standards - Fleet (Continued)

d. Research & Development

Boeing B-727
Aero Commander AC-680
Convair CV-580
Sikorsky S-76
Beech BE-200
Bell UH-1H Helicopter

NO. OF ENGINES & ENGINE TYPE	ACTUAL 9/30/93	ESTIMATE 9/30/94	ESTIMATE 9/30/95
3 Jet	2	1	1
2 Piston	1	1	1
2 Turboprop	3	2	2
2 Turborotor	1	1	1
2 Turboprop	1	1	1
1 Turborotor	1	1	1
	9	7	7
Total FAA Owned	55	48	43

2. 2. FAA Lease -

a. Support

Lear 31A a/

2 Jet	2	1	1
	2	1	1

b. Training

Cessna CE-560

2 Jet	1	1	1
	1	1	1

Total FAA Leased

3	2	2
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TOTAL FAA FLEET

58	48	45
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a/ Aircraft mission also training.

Operations AppropriationAviation StandardsWorkload MeasuresFLIGHT PROGRAM AND MANAGEMENT OF AIRCRAFT

	<u>Volume of Activity</u>		<u>PERCENT CHANGED</u>			
	<u>Act.</u>	<u>Act.</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Flight Hours						
Flight Inspection	21,779	19,910				
Support	27,265	21,337				
Training*	7,947	4,000				
TOTAL	56,991	45,247				
*FY 94 and FY 95 decrease reflects reduction in Academy requirements.						
Development of Flight Procedure	24,525	22,975				
Number of Facilities Requiring Flight Inspection	5,367	5,060				

RECORDS SERVICING AND ANALYSISAircraft Registration

Examinations	212,442	202,068	196,349	201,003		
Records Update	248,949	208,192	202,300	207,095		
Correspondance	28,402	28,598	27,789	28,447		
Cashier	133,836	124,489	120,966	123,833		
Coding	52,506	53,440	51,928	53,158		
TOTAL	676,135	616,787	599,332	613,536		

Airmen CertificationExaminations (applications)

Written Tests	234,403	208,716	202,809	207,616		
Change of Address	164,579	113,063	109,863	57,212		
Legal Actions	82,658	68,326	66,392	67,966		
Mail	12,052	12,544	12,189	12,478		
File Maintenance	367,470	401,391	390,032	399,275		
TOTAL	14,097	14,428	14,020	14,352		
	875,259	818,468	795,305	758,899		

PERCENT CHANGED
1992 1993 1994 1995

-8.6% -1.8% 7.6%
-21.7% -9.0% -5.9%
-49.7% -80.8% 0.0%

-6.3% 17.0% 8.0%
-5.7% 31.2% 0.6%

-4.9% -2.8% 2.4%
-16.4% -2.8% 2.4%
0.7% -2.8% 2.4%
-7.0% -2.8% 2.4%
1.8% -2.8% 2.4%

-11.0% -2.8% 2.4%
-31.3% -2.8% -47.9%
-17.3% -2.8% 2.4%
4.1% -2.8% 2.4%
9.2% -2.8% 2.4%
2.3% -2.8% 2.4%

PERCENT CHANGED

Volume of Activity

Operations Appropriation

Aviation Standards

Workload Measures (continued)

AVIATION MEDICINE

Airmen Medical Certification

	Act. 1992	Act. 1993	Est. 1994	Est. 1995	1992 1993	1993 1994	1994 1995
Applications Processed/Received	481,658	459,530	464,125	468,766	-4.6%	1.0%	1.0%
DW/NDR Applications Processed	25,580	24,760	25,007	25,257	-3.2%	1.0%	1.0%
New Special Issuances Processed	2,495	1,971	2,000	2,020	-21.0%	1.5%	1.0%
Recertified Special Issuances Processed	8,033	7,379	7,452	7,528	-8.1%	1.0%	1.0%
Problem Cases (Regions)	9,924	8,910	8,900	8,900	-11.2%	1.0%	0.0%

Physical Examinations Performed:

- a. Conducted by FAA Medical Staff
- b. Out-of-Agency (AME's)

Airmen Medical Examiners (AME)

Number of AME's

	5,779	5,693	6,000	6,200	-1.5%	5.4%	3.3%
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Occupational Health Program

Number Served at Clinics

Number of Screening Programs

Number of Participants

	38,829	41,313	44,417	46,162	12.2%	7.5%	3.9%
	157	230	407	425	46.5%	77.0%	4.4%
	8,365	22,551	27,553	28,928	169.6%	22.2%	5.0%

Aviation Industry Drug Program

Anti-drug Plans Submitted for Review & Approval *

Anti-drug Plan Amendments Submitted

Program Educational Conferences

Audits/Investigations Conducted

Number of Employers Covered in Audits

* FY 1994 increase due to anticipated implementation of alcohol rule.

FY 1995 decrease reflects the estimated remainder of the plans to be submitted and reviewed for implementation

of the alcohol rule.

<u>Operations Appropriations</u>		<u>Volume of Activity</u>		<u>PERCENT CHANGED</u>			
<u>Aviation Standards</u>		<u>Act. Est.</u>		<u>1992 1993 1994 1995</u>			
<u>Workload Measures (continued)</u>		<u>1992 1993</u>		<u>1994 1995</u>			
<u>AVIATION MEDICINE (continued)</u>							
Number of Tests		13,000 12,584		12,970 13,000		-3.2% 3.1%	
Number of Positives		13 24				84.6% 0.0%	
<u>Autopsies</u>							
Number Autopsies Performed		499 408		485 509		-18.2% 18.9%	
<u>Industrial Hygiene</u>							
Consultations/Inspections/Investigations/							
Surveys		528 475		521 519		-10.0% 9.7%	
<u>Airman Medical Education Activities</u>							
Conducted At CAMI							
Airman Education Courses		289 326		300 330		12.8% -8.0%	
Number Trained		8,775 6,925		8,000 10,500		-21.1% 15.5%	
<u>AME Seminars Conducted</u>							
Number Trained		16 16		17 17		0.0% 6.3%	
		1,785 1,418		1,500 2,000		-20.6% 5.8%	
<u>Certification Workshops</u>							
Number Trained		20 33		17 0 *		65.0% -48.5%	
		1,102 2,424		1,500 1,800		120.0% -38.1%	

*In 1995, changed to Computer Based instruction

Operations AppropriationsAviation StandardsWorkload Measures (continued)

<u>Volume of Activity</u>		<u>PERCENT CHANGED</u>			
<u>Act.</u>	<u>Act.</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1994</u>
<u>1992</u>	<u>1993</u>	<u>1993</u>	<u>1994</u>	<u>1994</u>	<u>1995</u>

Est. 1995

PLANNING, DIRECTION AND EVALUATIONAccident InvestigationNTSB Recommendations ReceivedAccidents/Incidents InvestigatedSpecial Accidents/Incidents InvestigatedNTSB Hearings ParticipatedFAA Recommendations ReceivedNTSB Requests Received

123	92	110	115	-25.2%	19.6%	4.5%
40	43	45	45	7.5%	4.7%	0.0%
80	191	200	200	138.9%	4.7%	0.0%
2	1	2	2	-50.0%	100.0%	0.0%
355	478	500	525	34.6%	4.8%	5.0%
119	123	125	125	3.4%	1.6%	0.0%

OPERATIONS APPROPRIATIONAviation Standards Program

The estimate for FY 1995 provides a net change of -\$3,476,000, -57 FTP's, and -57 FTE's from FY 1994. Changes in the requirements for FY 1995 follow:

NON-DISCRETIONARY CHANGES

	(\$000)	RECORDS SERVICING & ANALYSIS	PLANNING DIRECTION & EVALUATION
	<u>TOTAL</u>	<u>AIRCRAFT</u>	<u>MEDICAL</u>
1. Mandatory Pay Adjustments (Net)	(481)	(334)	124
2. Inflation	<u>448</u>	<u>389</u>	<u>46</u>
			<u>11</u>
Subtotal, Non-Discretionary Changes	(33)	55	(248)

MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE

1. NAS Handoff Increases

	<u>3,000</u>	<u>2,700</u>	<u>0</u>
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PROGRAM REDUCTIONS

1. Staffing Reductions
2. Consolidation of ADP Support
3. Awards Reduction
4. Travel
5. Aircraft Savings
6. Flight Hour Reductions

	(815)	(516)	(206)	0
	(232)	(186)	(8)	(18)
	(166)	(93)	(46)	(17)
	(787)	(421)	(290)	(74)
	(1,943)	(1,943)	0	0
	<u>(2,500)</u>	<u>(2,500)</u>	<u>0</u>	<u>0</u>
Subtotal, Program Reductions	<u>(6,443)</u>	<u>(5,659)</u>	<u>(550)</u>	<u>(109)</u>

TOTAL NET CHANGE

	(3,476)	(2,904)	185	(357)
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OPERATIONS APPROPRIATION

Aviation Standards

The estimate for FY 1995 provides a net decrease of 57 FTP positions, 57 FTE's, and \$3,476,000 . Changes in requirements for FY 1995 follow:

Non-discretionary Changes (Net)-45 FTP's, -45 FTE's; -\$33,000
 1. Mandatory Pay Adjustments (Net)-45 FTP's, -45 FTE's; -\$481,000

These reductions reflect the pay costs associated with FY 1994 end-of-year on-board staffing due to the effects of the FY 1994 agency-wide hiring freeze, the proposed early retirement and voluntary separation initiative payment, and other mandatory pay changes.

The request includes the following pay changes:

Reduction of -\$826,000, -14 FTP's and -14 FTE's for annualization of FY 1994 EOY staffing levels into 1995, excluding those reductions associated with the proposed buy-out initiative. The savings are the result of a lower FTE requirement to support on-board staff in FY 1995.

Savings of -\$2,138,000, -31 FTP's and -31 FTE's for annualization of employee separations associated with the Administration's proposed buy-out in FY 1994.

\$626,000 for annualized pay costs associated with FY 1994 locality pay increase.

\$411,000 for new FY 1995 Within Grade Increases.

\$851,000 for the full FY 1995 cost of an estimated 1.6 percent January 1995 pay raise.

\$866,000 for employee benefits to accommodate changes in workforce demographics and increases in the agency's cost of Health Benefits and FICA (Social Security) over and above the rate of increase for base pay.

Savings of -\$271,000 due to one less compensable day in FY 1995.

OPERATIONS APPROPRIATIONAviation Standards

2. Inflation

.....\$448,000

Price increases totalling \$448,000 are required to meet inflationary needs in such areas as travel, transportation, rents, supplies, contract support and equipment.

Mandatory Increases Associated with New Systems Coming On-Line

.....\$3,000,000

3. NAS Hand-off

.....\$3,000,000

The FAA is currently midway through implementation of a major effort to modernize the National Airspace System (NAS). Capital expenditures for modernization of the NAS are made under the Facilities and Equipment (F&E) Appropriations. Once new systems are put in place, the costs of operating and maintaining the systems are covered by the Operations Appropriation. This is in addition to operating and maintenance costs associated with existing systems which have not been replaced or phased out. FAA must continue to cover these costs as new systems are brought on line. Follow-on costs associated with the implementation of new NAS related systems are outlined below:

RECORDS SERVICING AND ANALYSIS (Airman and Aircraft Registry)- An increase of \$300,000 is required for the Electronic Data Management System (EDMS) including specialized supplies such as optical disks platters to maintain the EDMS; new, non-forgable and unique certificate issuances for the new airman and aircraft comprehensive system; and training and supplies related to the new modernized registration system. Implementation of this system is scheduled for July 1995. The workload is expected to increase by approximately 2.4 percent.

AIRCRAFT PROGRAM - An increase of \$2,700,000 in FY 1995 is required for the following items:

- **Aircraft Fleet Modernization:** Delivery of new flight inspection aircraft is currently scheduled to begin in mid-FY 1995. These aircraft require 100 flight hours for operational test and evaluation (OT&E). An increase of \$500,000 is required to provide fuel for OT&E, contract maintenance, supplies, and follow-on equipment maintenance training for the new aircraft.
- **Aircraft Related Equipment (ARE):** An increase of \$1,500,000 is required for contract maintenance repair of new GPS, TCAS, MODE S, Runway Update System, Engine Trend Monitoring, and Multisensor Enroute Flight Inspection System (MEFIS). FAA does not possess the capability in-house to maintain this equipment.

OPERATIONS APPROPRIATIONAviation Standards

- An increase of \$100,000 is requested for increased fuel requirements in support of 1,488 flight hours to perform periodic flight inspection of 151 newly commissioned NAS systems. These systems are in addition to approximately 58 new NAS systems to be commissioned in FY 1994.
- An increase of \$600,000 is required for Instrument Approach Procedures Automation (IAPA) System (Phase II). This system becomes operational in FY 1995; therefore, maintenance for hardware and software must be funded from the operations appropriation. Digitized maps for the IAPA system must be purchased on a recurring basis. IAPA implementation will provide increased responsiveness to the public through the ability to create new, and review current, Standard Instrument Approach Procedures (SIAPS) using perspective and three-dimensional view analysis capabilities. Increasing the standardization of SIAPS and preventing development of SIAPS outside of standard criteria reduces errors and increases safety to the general flying public. Implementation of IAPA precludes any requirements for additional procedures specialists.

Program Reductions

.....-12 FTE's, -12 FTP's -\$6,443,000

1. Staffing Reductions

.....-12 FTE's, -12 FTP's -\$815,000

An FY 1995 staffing reduction of -12 FTP's, -12 FTE's and -\$815,000 is shown as a result of continuing an agency-wide hiring freeze where necessary. This hiring freeze is an important element of the agency's on-going effort to streamline its operations, especially its administrative and support operations, to meet the NPR goals of a more efficient organization. This attrition and early out/buy out authority will hopefully allow the agency to avoid adverse actions in reducing staffing and streamlining the agency. End of year staffing will decrease by 27 in FY 1995, reducing the program to a level below the actual employment level in FY 1991.

2. Streamlining of ADP Support

.....-\$232,000

Savings of \$232,000 will be realized by streamlining the support and maintenance of administrative ADP functions in Washington Headquarters, consistent with the NPR-inspired streamlining and reorganization of Headquarters activities.

3. Awards Reductions

.....-\$166,000

Savings of \$166,000 will be realized by reducing funding for employee-recognition awards.

OPERATIONS APPROPRIATIONAviation Standards

4. Travel\$787,000

Savings of \$787,000 are anticipated as a result of agency efforts to re-engineer processes, reassess the frequency of operational travel requirements, and use video conferencing. These savings will represent a 21% reduction from the FY 1994 enacted level of \$3,710,000.

5. Aircraft Savings\$1,943,000

The request includes an aircraft savings of \$1,943,000 in contractual maintenance. During FY 1994, four aircraft are proposed to be removed from the fleet (two Beech 90 - Training; one Convair - Research and Development; and one Boeing 727 - Research and Development). These aircraft are identified to GSA for disposal.

6. Flight Inspection Flight-Hour Reductions\$2,500,000

The request includes a savings of \$2,500,000. The FY 1994 Appropriations included a one-time increase of \$2,500,000 for flight inspection flight hours to flight inspect new landing aids and related equipment scheduled for delivery in FY 1994. The flight inspection program base was at an adequate level of funding in FY 1994; therefore the FAA reprogrammed this one-time increase to help offset unfunded locality pay of approximately \$70,000,000.

DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 OPERATIONS APPROPRIATION
 FY 1995 CONGRESSIONAL SUBMISSION
 CIVIL AVIATION SECURITY

	DOLLAR RESOURCES (\$000)			STAFFING			
	PC&B	OTHER OBJECTS	TOTAL	FTP POS	TOTAL	FTE LEVEL	
						FTP	OTFTP
FY 1993 ACTUAL	\$54,031	\$14,312	\$68,343	1,031	864	846	19
FY 1994 PROGRAM LEVEL	53,873	11,993	65,866	997	861	847	14
PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	624	190	814	(26)	(26)	(26)	0
MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE	0	0	0	0	0	0	0
PROGRAM REDUCTIONS (DISCRETIONARY)	(446)	(1,146)	(1,592)	0	0	0	0
RECOMMENDED PROGRAM INCREASES	0	0	0	0	0	0	0
FY 1995 REQUEST LEVEL	\$54,051	\$11,037	\$65,088	971	836	821	14

OPERATIONS APPROPRIATION

OPS-118

Civil Aviation Security

General Justification

For FY 1995, the operation of the Civil Aviation Security Program will require 971 FTP positions, 835 FTE's and \$85,088,000. This represents a decrease of \$778,000 below the FY 1994 level.

The Civil Aviation Security Program provides for the overall planning, direction, management, evaluation and enforcement of civil aviation security. The primary objective of the Civil Aviation Security Program is to safeguard passengers, crew, aircraft, and airports from the threat of hijacking, sabotage, and other criminal acts in accordance with the Anti-Hijacking Act of 1974 (Public Law 93-368), and the International Security and Development Cooperation Act of 1985 (Public Law 99-83). Additional legislation, such as the Anti-Drug Abuse Act of 1988 (Public Law 100-690), mandates the FAA's involvement in the fight against the flow of illegal drugs into the United States. Also, Public Law 100-235, dated January 8, 1988, mandates security for automated information systems and requires mandatory training for all persons involved in management and use or operation of Federal computer systems that contain "sensitive information."

The Aviation Security Improvement Act of 1990 (Public Law 101-604) identified approximately three dozen actions to improve aviation security, such as the establishment of the Federal Security Manager (FSM) positions at category X airports and the civil aviation security liaison officer (CASLO) positions at foreign airports. FSM's serve as the primary FAA representative in dealing with airport managers, air carriers, airport tenants, law enforcement agencies, and other federal agencies in matters involving aviation security. CASLO's serve as the Civil Aviation Security technical expert and primary agency contact point on program matters with security representatives of other U.S. government agencies, host governments, and other officially recognized security interests.

This program has statutory responsibilities to ensure that foreign carriers operating to, from, and within the United States and American carriers operating throughout the world implement effective security programs. This includes developing countermeasures against criminal and/or terrorist threats against U.S. airports and aircraft and providing technical assistance, training and guidance in required security measures to airports, air carriers and other regulated parties. The program includes efficient usage of Federal Air Marshals (FAM's), the enhanced assessment and monitoring of foreign and domestic airports and air carriers, and the implementation of initiatives to increase civil aviation security's presence in foreign locations.

OPERATIONS APPROPRIATION

CIVIL AVIATION SECURITY

WORKLOAD MEASURES

	VOLUME OF ACTIVITY			PERCENT OF CHANGE		
	ACTUAL 1992	ACTUAL 1993	(EST) 1994	(EST) 1995	1992	1993

INVESTIGATIONS

Internal Investigations	1,735	1,908	1,811	1,811	9.9%	-5.0%
Regulatory Investigations	730	661	628	628	-9.5%	-5.0%
Criminal Investigations	239	531	504	504	122.2%	-5.1%
Administrative Activity	17,906	16,492	16,162	16,162	-7.9%	-2.0%
DUI/DWI						
Regulatory Investigations	835	890	845	845	6.8%	-5.1%
Pilots Processed	434,823	392,587	384,735	384,735	-9.7%	-2.0%
Pilots Investigated	12,682	8,868	8,425	8,425	-29.5%	-5.0%

LAW ENFORCEMENT ASSISTANCE UNITS

Law Enforcement Assistants

Airmen	10,868	5,940	5,643	5,643	-45.3%	-5.0%
Aircraft	16,739	8,965	8,516	8,516	-43.0%	-5.0%
Reports of Information	3	2	2	2	-33.3%	0.0%
Records Requests						
Certified	389	558	530	530	43.4%	-5.0%
Non-certified	5,249	5,715	5,429	5,429	8.9%	-5.0%
Regulatory Investigations						
Airmen	1	0	1	1	-100.0%	100.0%
Aircraft	0	0	1	1	0.0%	100.0%
Special Projects (Research)	116	81	77	77	-30.2%	-4.9%

PERSONNEL SECURITY

Background Investigations	2,389	1,809	1,718	1,718	-24.3%	-5.0%
Clearance Waivers	339	224	219	219	-33.9%	-2.2%
MATES - FBI Fingerprint Searches	2,235	907	862	862	-59.4%	-5.0%
Adjudication Actions	2,532	1,937	1,840	1,840	-23.5%	-5.0%
Clearances Granted	2,391	1,337	1,270	1,270	-44.1%	-5.0%
Industrial Security Clearances	1,051	1,687	1,603	1,603	60.5%	-5.0%

OPERATIONS APPROPRIATION
CIVIL AVIATION SECURITY

OPS-120

CIVIL AVIATION SECURITY		VOLUME OF ACTIVITY			PERCENT OF CHANGE		
	ACTUAL	ACTUAL	(EST)	(EST)	1992	1993	1994
WORKLOAD MEASURES							
	1992	1993	1994	1995			
INTERNAL SECURITY							
Physical Security Inspections	1,458	1,880	1,767	1,767	27.6%	-8.0%	0.0%
Physical Security Surveys	39	57	40	40	46.2%	-29.8%	0.0%
Physical Security Risk/Vulnerability Assessment	95	113	110	110	18.9%	-2.7%	0.0%
Identification Media	13,583	12,225	11,614	11,614	-10.0%	-5.0%	0.0%
Information Security Inspections/Surveys	541	500	476	475	-7.6%	-8.0%	0.0%
Security Education Briefings/Presentations	254	230	218	218	-9.4%	-8.2%	0.0%
COMSEC Inspections	58	46	44	44	-20.7%	-4.3%	0.0%
Technical Inspections	112	107	110	110	-4.5%	2.8%	0.0%
DRUG INTERDICTION							
Regulatory Investigations (Armen)	204	437	415	415	114.2%	-5.0%	0.0%
Regulatory Investigations (Aircraft)	181	553	525	525	205.5%	-5.1%	0.0%
Criminal Investigations	16	12	12	12	-25.0%	0.0%	0.0%
AIS SECURITY							
Technical Assistance	1,823	1,900	1,520	1,520	-12.2%	-5.0%	0.0%
Accreditation/Certification Inspections	1,344	1,200	1,140	1,140	-10.7%	-5.0%	0.0%
Program Evaluations	589	196	192	192	-66.7%	-2.0%	0.0%
INSPECTIONS/ASSESSMENTS/NASIP							
Domestic Airport Inspections (Comprehensive & Supplemental)	1,368	1,480	1,406	1,406	8.2%	-5.0%	0.0%
Domestic Air Carrier Inspections (Comprehensive & Supplemental)	9,535	10,235	9,723	9,723	7.3%	-5.0%	0.0%

1994
1995

0.0%

-5.0%

0.0%

0.0%

0.0%

0.0%

0.0%

0.0%

0.0%

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0.0%

OPERATIONS APPROPRIATION		VOLUME OF ACTIVITY		PERCENT OF CHANGE	
CIVIL AVIATION SECURITY		ACTUAL		(EST)	
WORKLOAD MEASURES		1992	1993	1994	1995
Domestic Airport/Air Carrier Hazardous Materials(Comprehensive & Supplemental)		5,289	6,504	6,179	23.0%
Hazardous Materials at Foreign Airports		830	415	412	-50.0%
PART 109 (Cargo Security) Surveys		100	100	95	0.0%
Domestic Foreign Air Carriers Inspections at U.S. Airports (Comprehensive & Supplemental)		3,157	3,017	3,017	-4.4%
Foreign Airport Assessments (AEU/AWO Only)		148	157	170	6.1%
U.S. Carrier Foreign Station Inspections (AEU/AWP/ANM/ASW/ASO/AEA ONLY)		266	392	392	47.4%
Foreign Air Carrier (Last Point of Departure) (AEU/AWP/ANM/ASW/ASO/AEA ONLY)		118	100	115	-15.3%
ENFORCEMENT					
Citing of Violations & Issuance of Regulations		4,351	4,552	4,324	4.6%

OPERATIONS APPROPRIATION

OPS-122

Civil Aviation Security

Resource Summary

	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	(Est.) FY 1994	Proposed Change	(Est.) FY 1995
PC&B	\$37,862	\$49,292	\$54,031	\$53,873	178	54,051
0.0	15,989	14,428	14,312	11,993	(956)	11,037
TOTAL	\$53,851	\$63,720	\$68,343	\$65,866	\$(778)	\$65,088

Staffing Information

FTP Positions	862	1,031	1,031	997	(28)	971
Celling FTE's	874	840	864	881	(26)	835
End-of-year Employment	810	852	831	812	0	812

OPERATIONS APPROPRIATION

Civil Aviation Security

Authorized Staffing

CAS PROGRAM:

	<u>FY 1993</u>	<u>Estimated FY 1994</u>	<u>Estimated FY 1995</u>
	<u>Positions</u>	<u>Positions</u>	<u>Positions</u>
	<u>EOY</u>	<u>EOY</u>	<u>EOY</u>
Field			
Agents	634	617	601
Support	<u>164</u>	<u>159</u>	<u>155</u>
			521
			<u>124</u>
Subtotal	798	776	756
			645
Washington			
Agents	154	146	142
Support	<u>79</u>	<u>75</u>	<u>73</u>
			117
			<u>50</u>
Subtotal	233	221	215
			167
Total CAS Program:			
Agents	788	763	743
Support	<u>243</u>	<u>234</u>	<u>228</u>
			638
			<u>174</u>
Total	<u>1,031</u>	<u>997</u>	<u>971</u>
			812

OPERATIONS APPROPRIATIONCivil Aviation Security

The estimate for FY 1995 provides for a net decrease of \$778,000, 28 FTP Positions and 28 FTE's below FY 1994. Changes in the requirements for FY 1995 are as follows:

Non-Discretionary Changes

1. Mandatory Pay Adjustments.....	\$611,000
2. Inflation.....	\$203,000
Subtotal, Non-Discretionary Changes.....	\$814,000

Program Decreases

1. Consolidation of ADP Support	-\$34,000
2. Awards Reduction	-\$99,000
3. Travel.....	-\$1,036,000
4. Permanent Change of Station (PCS) Reduction	-\$423,000
Subtotal, Program Decreases	-\$1,592,000
TOTAL NET CHANGE	-\$778,000

OPERATIONS APPROPRIATION

Civil Aviation Security

The estimate for FY 1995 provides a net decrease of \$778,000, 26 FTP Positions and 28 FTE's below FY 1994. Changes in requirements for FY 1995 follow.

<u>NON-DISCRETIONARY CHANGES (Net)</u>	-28 FTP's, -\$814,000
1. Mandatory Pay Adjustments (Net).....	-28 FTP's, -\$611,000

These changes reflect the full annual pay costs associated with FY 1994 end-of-year on-board staffing due to the effects of the FY 1994 agency-wide hiring freeze, and other mandatory pay changes.

The request includes the following pay changes:

Reduction of \$2,035,000, 26 FTP Positions and 28 FTE's for annualization of FY 1994 EOY staffing levels into FY 1995. Staffing will be lower at the end of FY 1994 than it was at the end of FY 1993. The savings are the result of a lower FTE requirement to support on-board staff in FY 1995.

\$462,000 for annualized pay costs associated with the FY 1994 locality pay increase.

\$387,000 for new FY 1995 Within Grade Increases.

\$630,000 for the full FY 1995 cost of an estimated 1.6 percent January 1995 pay raise.

\$1,367,000 for employee benefits to accommodate changes in workforce demographics and increases in the agency's cost of Health Benefits, and FICA (Social Security) over and above the rate of increase for base pay.

Savings \$200,000 due to one less compensable day in FY 1995.

OPERATIONS APPROPRIATION

Civil Aviation Security

2. Inflation	\$203,000
Price Increases totaling \$203,000 are required to meet inflationary needs in such areas as travel, transportation, rents, supplies, contract support and equipment.	
<u>PROGRAM REDUCTIONS</u>	\$1,592,000
1. ADP Support	\$34,000
Savings of \$34,000 will be realized by streamlining the support and maintenance of administrative ADP functions in Washington Headquarters, consistent with the NPR-inspired streamlining and reorganization of Headquarters activities.	
2. Awards Reduction	\$99,000
Savings of \$99,000 will be realized by reducing the funding for employee recognition awards.	
3. Travel	\$1,036,000
Savings of \$1,036,000 are anticipated as a result of agency efforts to re-engineer processes, reassess the frequency of operational travel requirements, and use video conferencing. These savings will represent a 22 percent reduction from the FY 1994 enacted level of \$4,676,000.	
4. Permanent Change of Station (PCS)	\$423,000

PCS savings of \$423,000 will be accomplished by restricting PCS moves to only high priority moves.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
FY 1995 CONGRESSIONAL SUBMISSION
NAS DESIGN AND MANAGEMENT

	DOLLAR RESOURCES (\$000)			STAFFING			
	PC&B	OTHER OBJECTS	TOTAL	FTE LEVEL		OT/FTP	
				FTP POS	TOTAL		
FY 1993 ACTUAL	\$36,739	\$17,659	\$54,398	529	597	562	35
FY 1994 PROGRAM LEVEL	36,097	18,531	56,628	588	598	506	12
PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	(685)	211	(474)	(26)	(28)	(26)	0
MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE	0	500	500	0	0	0	0
PROGRAM REDUCTIONS (DISCRETIONARY)	(507)	(402)	(909)	(5)	(5)	(5)	0
PROGRAM INCREASES	0	0	0	0	0	0	0
FY 1995 REQUEST LEVEL	\$36,905	\$18,840	\$55,745	557	567	555	12

OPERATIONS APPROPRIATIONNAS Design and ManagementGeneral Justification

For FY 1995, the NAS Design and Management (NDM) Activity will require \$55,745,000, 557 positions, and 567 FTE's. This activity provides resources necessary to oversee Research, Engineering, and Development (RE&D) and Facilities and Equipment (F&E) programs, both in-house and contractual, required for the development and implementation of a global aviation system designed to meet user demand for increasing system safety, capacity, and productivity. This is accomplished by providing the management and leadership necessary to direct, coordinate, control, and ensure the adequacy of FAA plans and programs for system acquisitions, engineering, and management activities of the NAS. This activity also provides the resources to develop the comprehensive plans for the RE&D and CIP that are dedicated to achieving the mission of the FAA. The functions for the Associate Administrator for Contracting and Quality Assurance and the FAA Technical Center, previously reflected in the NAS Logistics Activity, were transferred to the NAS Design and Management Activity. These resources provide for the acquisition of materiel, equipment, and services for the NAS, Interagency, and International programs; and for the operation and maintenance of the entire Technical Center complex, including over 5,000 acres and 1.3 million square feet of office and laboratory space.

OPERATIONS APPROPRIATIONNAS Design and ManagementRESOURCE SUMMARY (\$000)

	Actual FY 1991	Actual FY 1992	Actual FY 1993	Est. FY 1994	Proposed Change	Est. FY 1995
PC&B	20,133	21,562	36,739	38,097	(1,192)	36,905
O.O.	<u>3,223</u>	<u>1,954</u>	<u>17,659</u>	<u>18,531</u>	<u>309</u>	<u>18,840</u>
Total	23,356	23,516	54,398	56,628	(883)	55,745

Staffing Information

FTP Positions	285	585	529	588 *	(31)	557
Direct FTE's	298	303	597	598	(31)	567
EOY Employment	298	430	556	535	(11)	524

* Reflects a base transfer of 52 vacant authorized positions from Systems Maintenance to NAS Design and Management to properly align positions with employment levels. As employment level declines in future years, further position reductions will be taken.

OPERATIONS APPROPRIATIONNAS Design and Management

The estimate for FY 1995 provides a net change of -\$883,000, -31 FTP's, and -31 FTE's over FY 1994. Changes in requirements for FY 1995 follow:

(\$000)
TOTAL

NON-DISCRETIONARY CHANGES

1. Mandatory Pay Adjustments (Net)
2. Inflation
- Subtotal, Non-discretionary Changes

(685,000)
211,000
(474,000)

MANDATORY INCREASES ASSOCIATED WITH
NEW SYSTEMS COMING ON-LINE

1. Utilities Increases for Operation of AAS Laboratory

500,000

PROGRAM REDUCTIONS

1. Staffing Reductions
2. Streamlining ADP Support
3. Awards Reduction
4. Travel
- Subtotal, Program Reductions

(384,000)
(174,000)
(123,000)
(228,000)
(809,000)

TOTAL RECOMMENDED CHANGE

-\$883,000

OPERATIONS APPROPRIATIONNAS Design and Management

The estimate for FY 1995 provides a net decrease of -\$883,000, -31 FTP's, and -31 FTE's. Changes in requirements for FY 1995 follow:

NON-DISCRETIONARY CHANGES (Net) -26 FTP's, -26 FTE's; -\$474,000

1. Mandatory Pay Adjustments (Net) -26 FTP's, -\$685,000

The request includes the following pay changes:

Reduction of \$817,000, 11 FTP's, and 11 FTE's for annualization of FY 1994 EOY staffing levels into FY 1995, excluding those reductions associated with the proposed buy-out initiative. Staffing will be lower at the end of FY 1994 than it was at the end of FY 1993. The savings are the result of a lower FTE requirement to support on board staff in FY 1995.

Savings of \$1,207,000, 15 FTP's, and 15 FTE's for annualization of employee separations associated with the Administration's proposed buy-out in FY 1994.

\$323,000 for annualized pay costs associated with FY 1994 locality pay increase.

\$147,000 for new FY 1995 Within Grade increases.

\$439,000 for the full FY 1995 cost of an estimated 1.6 percent January 1995 pay raise.

\$570,000 for employee benefits to accommodate changes in workforce demographics and increases in the agency's cost of Health Benefits and FICA (Social Security) over and above the rate of increase for base pay.

Savings of \$140,000 due to one less compensable day in FY 1995.

2. Inflation \$211,000

Price increases totalling \$482,000 are required to meet inflationary needs in such areas as travel, transportation, rents, supplies, contract support and equipment.

OPERATIONS APPROPRIATIONNAS Design and Management

MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE.....\$500,000

3. Utilities for Operation of AAS Laboratory.....\$500,000

The FAA is currently midway through implementation of a major effort to modernize the NAS. Capital expenditures for modernization of the NAS are made under the Facilities and Equipment (F&E) Appropriation. Once new systems are put in place, the costs of operating and maintaining the systems are covered by the Operations Appropriation. This is in addition to operating and maintenance costs associated with existing systems which have not been replaced or phased out. FAA must continue to cover these costs as new systems are brought on line. Follow-on costs associated with the implementation of new NAS related systems are outlined below.

\$500,000 is required over the FY 1994 base of \$5,927,000 for utilities for the first full year of operation of the Advanced Automation System (AAS) Laboratory. Equipment began to be moved into the Advanced Automation System (AAS) Laboratory in May 1993. As of February 1994, 60 percent of the equipment is in place. By March 1995 all equipment to support the lab will be on site. Employees began to occupy the building starting October 1993. There are currently 300 government employees and 300 contractors employed at the lab. In FY 1995 when the lab is 100 percent occupied, the planned occupancy level is 300 government employees and 469 contractors.

Funds will support purchase and payment of electrical power and natural gas service at the Technical Center. The pricing is based on past utility bills and projected increases due to additional consumption and the operation of the Advanced Automation System (AAS) Laboratory. The AAS laboratory contains a 40,000 square foot test bed which houses numerous electrical systems and consumes an additional 25 watts per square foot of power in this area.

PROGRAM REDUCTIONS.....-5 FTP's, -\$909,000

1. Staffing Reductions -5 FTP's, -\$384,000

An FY 1995 staffing reduction of 5 FTP's, 5 FTE's and \$384,000 is shown as a result of continuing an agency-wide hiring freeze where necessary. This hiring freeze is an important element of the agency's on-going effort to streamline its operations, especially its administrative and support operations, to meet the NPR goals of a more efficient organization. This attrition and early out/buyout authority will hopefully allow the agency to avoid adverse actions in reducing staffing and streamlining the agency.

OPERATIONS APPROPRIATIONNAS Design and Management

2. Streamlining ADP Support.....\$174,000

Savings of \$174,000 will be realized by streamlining the support and maintenance of administrative ADP functions in Washington Headquarters, consistent with the NPR-Inspired streamlining and reorganization of Headquarters activities.

3. Awards Reduction.....\$123,000

Savings of \$123,000 will be realized by reducing funding for employee recognition awards.

4. Travel.....\$228,000

Savings of \$228,000 are anticipated as a result of agency efforts to re-engineer processes, reassess the frequency of operational travel requirements, and use video conferencing. These savings will represent a 35 percent reduction from the FY 1994 enacted level of \$652,000.

DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 OPERATIONS APPROPRIATION
 FY 1995 CONGRESSIONAL SUBMISSION
 ADMINISTRATION OF AIRPORTS

	DOLLAR RESOURCES (\$000)			STAFFING			
	PC&B	OTHER		FTP POS	FTE LEVEL		
		OBJECTS	TOTAL		TOTAL	FTP	OT/FTP
FY 1993 ACTUAL	\$34,779	\$6,460	\$41,239	550	541	513	28
FY 1994 PROGRAM LEVEL	34,685	4,171	38,856	522	528	504	24
PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	1,459	22	1,481	0	0	0	0
MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE	0	0	0	0	0	0	0
PROGRAM REDUCTIONS (DISCRETIONARY)	(126)	(76)	(202)	0	0	0	0
PROGRAM INCREASES	307	35	342	0	0	0	0
FY 1995 REQUEST LEVEL	\$36,325	\$4,152	\$40,477	522	528	504	24

OPERATIONS APPROPRIATIONAdministration of Airports

General Justification

For FY 1995, the Administration of Airports Program will require 522 FTP positions, 528 FTE's, and \$40,477,000. This represents an increase of \$1,621,000, or 4 percent, over the FY 1994 level of \$38,856,000.

The Airports program covers the identification, planning, development, capacity enhancement, and safety certification of the Nation's system of public airports to serve the needs of civil aviation in the 50 States and territories. The FY 1995 request supports the FAA's continued emphasis on expansion and anticipation of future needs of the airport system.

Principal activities in the Airports program include planning and promoting efforts to enhance airport capacity and reduce delays; participating in safety planning activities for national and international airports with other organizations (including Federal, Military, State, and local agencies); administering grants for the airport improvement program; developing engineering and safety standards for airport operations; participating in the transfers of Federal land and property for civil aviation use; collecting, processing, and disseminating airport safety data; ensuring that public agencies receiving Federal assistance continue to operate airports for the benefit of the public in accordance with agreements; certifying the safety of airports; and implementing the Passenger Facility Charge (PFC) and Military Base Closures/Joint Use Initiatives.

OPERATIONS APPROPRIATION

Administration of Airports

WORKLOAD AND PERFORMANCE INDICATORS

ACTIVITY GROWTH TRENDS - FISCAL YEARS 1982-1995

	VOLUME OF ACTIVITY				PERCENT OF CHANGE		
	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>92-93</u>	<u>93-94</u>	<u>94-95</u>
Airports In National Plan of Integrated Airport Systems (NPIAS)	3,641	3,649	3,657	3,665	0.2%	0.2%	0.2%
Number of Airport Improvement Program (AIP) Grants Issued	1,507	1,525	1,533	1,541	1.2%	0.5%	0.5%
Grants-In-Aid Obligation Limitation (\$ in millions)*	1,900	1,800	1,690	1,690	-5.3%	-6.1%	0.0%

*FY 1994 reflects FY 1994 appropriation level enacted.

OPERATIONS APPROPRIATION

Administration of Airports

Resource Summary (\$000)

	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	(Est) FY 1994	(Proposed) Change	(Est.) FY 1995
PC&B	\$29,239	\$32,884	\$34,779	\$34,685	\$1,640	\$36,325
O.O.	8,432	7,912	8,460	4,171	(19)	4,162
TOTAL	\$37,671	\$40,796	\$41,239	\$38,856	\$1,821	\$40,477

Staffing:

	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	(Est) FY 1994	(Proposed) Change	(Est.) FY 1995
FTP Positions	522	550	550	522	0	522
Total Direct FTE's	492	526	541	528	0	528
End-of-Year Employment	502	507	506	496	0	496

OPERATIONS APPROPRIATION

Administration of Airports

The estimate for FY 1995 provides a net change of \$1,621,000. Changes in requirements for FY 1995 follow:

((\$000's)
TOTAL

NON-DISCRETIONARY CHANGES

1 Mandatory Pay Adjustments (Net)

2 Inflation

Subtotal, Non-Discretionary Changes

\$1,459

22

1,481

PROGRAM REDUCTIONS

1 Streamlining ADP Support

2 Awards Reduction

3 Travel

Subtotal, Program Reductions

(45)

(76)

(81)

(202)

PROGRAM INCREASES

1 PCS Moves-redeployment of staff

342

TOTAL RECOMMENDED CHANGE

\$1,621

OPERATIONS APPROPRIATIONAdministration of Airports

The estimate for FY 1995 provides a net increase of \$1,621,000. Changes in requirements for FY 1995 follow:

<u>NON-DISCRETIONARY CHANGES (Net)</u>	\$1,481,000
1. Mandatory Pay Adjustments (Net)	\$1,459,000

These changes reflect the pay costs associated with FY 1994 end-of-year on-board staffing due to the effects of the FY 1994 agency-wide hiring freeze and other mandatory pay changes.

The request includes the following pay changes:

\$411,000 for annualized pay costs associated with FY 1994 locality pay increase.

\$255,000 for new FY 1995 Within Grade Increases.

\$474,000 for the full FY 1995 cost of an estimated 1.6 percent January 1995 pay raise.

\$419,000 for employee benefits to accommodate changes in workforce demographics and increases in the agency's cost of Health Benefits, and FICA (Social Security) over and above the rate of increase for base pay.

Savings of \$100,000 due to one less compensable day in FY 1995.

2. Inflation.....	\$22,000
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Price increases totaling \$22,000 are required to meet inflationary needs in such areas as travel, transportation, rents, supplies, contract support and equipment.

OPERATIONS APPROPRIATIONAdministration of Airports

PROGRAM REDUCTIONS.....-\$202,000

1. Streamlining ADP Support.....-\$45,000

Savings of \$45,000 will be realized by streamlining the support and maintenance of administrative ADP functions in Washington Headquarters, consistent with the NPR-Inspired streamlining and reorganization of Headquarters activities..

2. Awards Reduction.....-\$78,000

Savings of \$78,000 will be realized by reducing funding for employee recognition awards.

3. Travel.....-\$81,000

Savings of \$81,000 are anticipated as a result of agency efforts to re-engineer processes, reassess the frequency of operational travel requirements, and use video conferencing. These savings represent a 20 percent reduction from the FY 1994 enacted level of \$374,000 and reflect an 80 percent reduction from the FY 1993 actual level.

PROGRAM INCREASES.....\$342,000

1. PCS Moves.....\$342,000

An increase of \$342,000 is being requested for the redeployment of critical regional staff. Reductions resulting from the hiring freezes imposed during FY 1993 and FY 1994 have created imbalances in staff distribution among the nine regions. Additional funding for approximately 7 permanent change of station moves is required to allow the program to better utilize available staff to meet critical workload demands and priorities such as, grants management, airport certification reviews, enforcement activities, etc. There is currently \$30,000 in the base for PCS moves in FY 1994.

DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 OPERATIONS APPROPRIATION
 FY 1995 CONGRESSIONAL SUBMISSION
 DIRECTION, STAFF, & SUPPORTING SERVICES

	DOLLAR RESOURCES (\$000)			STAFFING			
	PC&B	OTHER OBJECTS	TOTAL	FTP POS	FTE LEVEL		
					TOTAL	FTP OTFTP	
FY 1993 ACTUAL	\$83,970	\$69,106	\$153,076	1,434	1,492	1,374	118
FY 1994 PROGRAM LEVEL	86,383	60,330	146,713	1,444	1,472	1,350	122
PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	(2,489)	713	(1,776)	(65)	(65)	(65)	0
MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE	0	0	0	0	0	0	0
PROGRAM REDUCTIONS (DISCRETIONARY)	(1,489)	(2,371)	(3,860)	(18)	(18)	(18)	0
PROGRAM INCREASES	0	0	0	0	0	0	0
FY 1995 REQUEST LEVEL	\$82,405	\$58,672	\$141,077	1,361	1,389	1,267	122

OPERATIONS APPROPRIATIONDirection, Staff and Supporting ServicesGeneral Justification

For FY 1995, the Direction, Staff, and Supporting Services (DS&SS) activity will require \$141,077,000, 1,361 positions, and 1,389 FTE's. This is a decrease of \$5,636,000, 83 positions, and 83 FTE's from the FY 1994 base of \$146,713,000, 1,444 positions, and 1,472 FTE's.

The DS&SS activity supports all FAA organizations by providing administrative and legal services. Included are costs for administrative payrolls and supplies, communications, and other items at our Oklahoma City, Atlantic City, regional, headquarters, and European offices. Also, included in this activity is funding for automated data processing functions and Information Resource Management Plan costs which are located throughout the agency, but managed and funded in Washington.

The Direction, Staff, and Supporting Services account consists of two sub activities:

Office of the Chief Counsel

For FY 1995, the Office of the Chief Counsel will require \$24,578,000, 319 positions, and 311 FTE's. This is a decrease of \$1,274,000, 18 positions, and 18 FTE's from the FY 1994 base of \$25,852,000, 337 positions, and 329 FTE's.

The Office of the Chief Counsel provides legal counsel, advice and support to every program and office within the Federal Aviation Administration. The office ensures that all legal requirements conform with all applicable laws, rules, regulations, and orders. Areas of litigation include accident and tort claims, enforcement, public hearings regarding regulatory actions, labor and personnel actions, environmental issues, and airport capacity questions.

Other Direction, Staff, and Supporting Services

For FY 1995, the other Direction, Staff, and Supporting Services will require \$116,499,000, 1,042 positions, and 1,078 FTE's. This is a decrease of \$4,362,000, 65 positions, and 65 FTE's from the FY 1994 base of \$120,861,000, 1,107 positions, and 1,143 FTE's.

Included in this activity are headquarters, regional, and center activities for: Direction and Management, Public Affairs, International Aviation, Accounting, Budget, Civil Rights, Communications Control, Data Systems, and Management Systems. These regional and center programs provide the direction and staff functions and supporting services necessary for the conduct of agency activities where such services are not otherwise provided.

OPERATIONS APPROPRIATION

Direction, Staff, and Supporting Services

Resource Summary (\$000)

	(Actual) FY 1990	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	Estimated FY 1994	Proposed Change	Estimated FY 1995
Chief Counsel							
PC&B	14,016	17,275	20,282	21,682	22,520	(1,042)	21,478
O.O.	<u>3,325</u>	<u>3,580</u>	<u>3,085</u>	<u>3,758</u>	<u>3,332</u>	<u>(232)</u>	<u>3,100</u>
Total	17,341	20,855	23,367	25,440	25,852	(1,274)	24,578
Other DS&SS							
PC&B	49,713	53,061	59,177	62,268	63,863	(2,836)	60,927
O.O.	<u>68,228</u>	<u>70,211</u>	<u>99,594</u>	<u>85,348</u>	<u>56,998</u>	<u>(1,426)</u>	<u>55,572</u>
Total	117,941	123,272	128,771	127,636	120,861	(4,362)	116,499
TOTAL							
PC&B	63,729	70,336	78,459	83,970	86,383	(3,976)	82,405
O.O.	<u>71,553</u>	<u>73,791</u>	<u>72,679</u>	<u>69,106</u>	<u>60,330</u>	<u>(1,658)</u>	<u>58,672</u>
TOTAL	\$135,282	\$144,127	\$152,138	\$153,076	\$146,713	(\$5,636)	\$141,077

OPERATIONS APPROPRIATIONDirection Staff and Supporting ServicesStaffing Information

	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	Estimated FY 1994	Proposed Change	Estimated FY 1995
<u>FTP Positions</u>						
Chief Counsel	337	337	337	337	(18)	319
Other DS&SS	844	845	1,097	1,107	(65)	1,042
Total	1,181	1,182	1,434	1,444	(83)	1,381
<u>Total Direct FTE's</u>						
Chief Counsel	313	324	332	329	(18)	311
Other DS&SS	1,049	1,121	1,180	1,143	(65)	1,078
Total	1,362	1,445	1,492	1,472	(83)	1,389
<u>End-of-Year Employment</u>						
Chief Counsel	320	310	303	286	(9)	277
Other DS&SS	1,028	1,047	1,058	997	(31)	966
Total	1,348	1,357	1,361	1,283	(40)	1,243

OPERATIONS APPROPRIATIONDirection, Staff, and Supporting Services

The estimate for FY 1995 provides a net decrease of \$5,636,000, 83 positions, and 83 FTE's. Changes in the requirements for FY 1995 follow:

	(\$000)	DS&SS Other	General Counsel
<u>NON-DISCRETIONARY CHANGES</u>	<u>TOTAL</u>		
1. Mandatory Pay Adjustments (Net)	(2,489)	(1,840)	(849)
2. Inflation	713	684	29
SUBTOTAL, Non-Discretionary Changes	(1,776)	(1,156)	(620)
<u>PROGRAM REDUCTIONS</u>			
1. Staffing Reductions	(1,333)	(985)	(348)
2. Consolidation of ADP Support	(392)	(367)	(25)
3. Awards Reduction	(156)	(112)	(44)
4. Travel	(1,379)	(1,143)	(236)
5. Reduce DS&SS HQ Contracts	(600)	(600)	0
SUBTOTAL, Program Decreases	(3,860)	(3,207)	(653)
<u>TOTAL RECOMMENDED CHANGE</u>	<u>(\$5,636)</u>	<u>(\$4,363)</u>	<u>(\$1,273)</u>

OPERATIONS APPROPRIATION

Direction, Staff and Supporting Services

The estimate for FY 1995 provides a net decrease of \$5,636,000, 83 positions, and 83 FTE's. Changes in requirements for FY 1995 follow:

NON-DISCRETIONARY CHANGES (Net) -65 positions, -65 FTE's, -\$1,776,000

1. Mandatory Pay Adjustments (Net) -65 positions, -65 FTE's, -\$2,489,000

These reductions reflect the pay associated with FY 1994 end-of-year on-board staffing due to the effects of the FY 1994 agency-wide hiring freeze, the proposed early retirement and voluntary separation initiative payment and other mandatory pay changes.

The request includes the following pay changes:

Reduction of \$1,929,000, 28 positions, and 28 FTE's for annualization of FY 1994 EOY staffing levels into FY 1995, excluding those reductions associated with the proposed buy-out initiative to support on-board staff in FY 1995. The savings are the result of a lower FTE requirement to support on board staff in FY 1995.

Savings of \$3,199,000, 37 positions, and 37 FTE's for annualization of employee separations associated with the Administration's proposed buy-out in FY 1994.

\$731,000 for annualized pay costs associated with FY 1994 locality pay increase.

\$816,000 for new FY 1995 Within Grade increases.

\$997,000 for the full FY 1995 cost of an estimated 1.6 percent January 1995 pay raise.

\$811,000 for employee benefits to accommodate changes in workforce demographics and increases in the agency's cost of Health Benefits and FICA (Social Security) over and above the rate of increase for base pay.

Savings of \$318,000 due to one less compensable day in FY 1995.

2. Inflation \$713,000

Price increases totaling \$713,000 are required to meet inflationary needs in such areas as travel, transportation, rents, supplies, contract support, and equipment.

OPERATIONS APPROPRIATION

Direction, Staff and Supporting Services

<u>Program Reductions</u>	-16 positions, -16 FTE's, -\$3,660,000
1. Staffing Reduction	-16 positions, -16 FTE's, -\$1,333,000
An FY 1995 staffing reduction of 16 positions, 16 FTE's and \$1,333,000 is shown as a result of continuing an agency-wide hiring freeze where necessary. This hiring freeze is an important element of the agency's on-going effort to streamline its operations, especially its administrative end support operations, to meet the NPR goals of a more efficient organization. This attrition and early out/buyout authority will hopefully allow the agency to avoid adverse actions in reducing staffing and streamlining the agency.	
2. Streamlining ADP Support	-\$392,000
Savings of \$392,000 will be realized by streamlining the support and maintenance of administrative ADP functions in Washington Headquarters, consistent with the NPR-inspired streamlining and reorganization of Headquarters activities.	
3. Awards Reduction	-\$156,000
Savings of \$156,000 will be realized by reducing funding for employee recognition awards.	
4. Travel	-\$1,379,000
Savings of \$1,379,000 are anticipated as a result of agency efforts to re-engineer processes, reassess the frequency operational travel requirements, and use video conferencing. These savings will represent a 39 percent reduction from the FY 1994 enacted level of \$3,562,000.	
5. DS&SS HQ Contracts	-\$600,000
Savings of \$600,000 will be realized by reducing contracts in headquarters for data collection that is used for aviation statistical publications. The publications will be produced less frequently and possible elimination of certain information.	

DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 OPERATIONS APPROPRIATION
 FY 1995 CONGRESSIONAL SUBMISSION
 HUMAN RESOURCE MANAGEMENT

	DOLLAR RESOURCES (\$000)			STAFFING			
	PC&B	OTHER OBJECTS	TOTAL	FTP POS	FTE LEVEL		
					TOTAL	FTP	OT/FTP
FY 1993 ESTIMATE	\$163,189	\$108,535	\$271,724	1,533	1,584	1,464	120
FY 1994 PROGRAM LEVEL	170,061	97,178	267,239	1,445	1,558	1,438	120
PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	(4,255)	910	(3,345)	(92)	(94)	(94)	0
MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE	0	3,000	3,000	0	0	0	0
PROGRAM REDUCTIONS (DISCRETIONARY)	(1,870)	(21,205)	(23,075)	(22)	(22)	(22)	0
RECOMMENDED PROGRAM INCREASES	0	0	0	0	0	0	0
FY 1995 REQUEST LEVEL	\$163,936	\$79,883	\$243,819	1,331	1,442	1,322	120

OPERATIONS APPROPRIATIONHuman Resource Management

General Justification

In FY 1995, the Human Resource Management function will require 1,331 FTP positions, 1,442 FTE's, and \$243,819,000. This is a decrease of 114 FTP's, 116 FTE's and \$23,420,000 from FY 1994. The HRM activity provides support in all human resource management functions, including training, required by a workforce of some 50,000 performing technical and complex tasks.

Human Resource Management has progressed in promoting workforce diversity, a major agency initiative. Through workshops and seminars, agency managers and staff are learning the value of a diverse workforce. Additional initiatives highlight employee involvement and participative management techniques, organizational development programs, employee surveys, and other progressive human resource management systems. Improvements in agency training have been evolving to keep pace with the continually evolving face of American technology and aviation advances. Our shortened screening process for new air traffic controllers supports the comprehensive training program redesign begun in FY 1992. The Flight Plan for Training, a comprehensive initiative to address training deficiencies, will be in its seventh year in FY 1995; many of the improvements envisioned by the Plan have been realized and funding, therefore, can now be reduced. Beneficial effects from the HRM program appear both in terms of overall safety of the airspace system, improved human relations and management practices, and program efficiency.

Centralized Training (CT) Subactivity. In FY 1995, Centralized Training requests \$113,285,000, a decrease of \$17,741,000 from FY 1994. The major elements of this subactivity are a technical training Academy in Oklahoma City, Oklahoma; a Center for Management Development in Palm Coast, Florida; and an administrative and technical staff to develop and administer an integrated training program to assist employees in accomplishing the agency's aviation safety objectives. A number of efforts both planned or underway will redirect HRM activities over the next five years to respond to changing needs in the agency and the government. Initiatives are already underway to transfer some of the agency training burden to private source; for instance, agreements with 15 institutions allow graduates in air traffic control to by-pass the Academy and enter FAA facilities upon graduation.

Two thirds of our training program funds are for contracted instructional services, student travel and per diem, training materials, and updating and modernizing existing courseware. In addition, Centralized Training supports on-the-job (OJT) training, a large correspondence study program and a proficiency training program for fully certified specialists. Current activities focus on the review and modification of contractor-developed courseware for training on new Capital Investment Plan (CIP) equipment as it is integrated into field facilities.

OPERATIONS APPROPRIATIONHuman Resource Management

The FY 1995 request for the Centralized Training subactivity (excluding the Flight Plan for Training) is \$106,830,000, a net decrease of \$16,056,000. This is comprised of \$19,058,000 in non-discretionary decreases offset by a mandatory increase of \$3,000,000 to fund over 1,000 enrollments in new equipment training resulting from systems deliveries in FY 1994.

OPERATIONS APPROPRIATION**Human Resource Management**

CENTRALIZED TRAINING	Actual 1991	Actual 1992	Actual 1993	Estimate 1994	Proposed Change	Estimate 1995
Air Traffic	\$42,374	\$36,770	\$27,037	\$24,225	(\$2,852)	\$21,573
Airway Facilities	34,367	36,275	35,472	36,092	(\$2,227)	33,865
Regulatory Stnds and Compliance	33,454	35,158	32,125	26,163	(\$3,328)	22,835
Security	2,488	2,735	2,408	1,004	(\$199)	805
Program Administration and Other Support	9,307	12,435	13,321	14,241	(\$1,847)	12,594
Management and General	13,087	15,711	19,230	16,311	(\$5,601)	12,710
Airports/Logistics/Instructors	2,875	3,281	3,819	2,850	(\$402)	2,448
Total	\$137,732	\$142,385	\$133,212	\$122,888	(\$18,056)	\$106,830

FLIGHT PLAN FOR TRAINING	Actual 1991	Actual 1992	Actual 1993	Estimate 1994	Proposed Change	Estimate 1995
Curricula Redesign (CT)	\$5,210	\$3,524	\$8,213	\$8,158	(\$1,513)	\$4,645
On the Job Training (CT)	520	303	770	0	\$0	0
Management Development Strategic Plan (CT)	2,704	1,768	1,008	839	(\$184)	455
Academic and Industrial Ties (CT)	4,411	3,581	2,643	208	(\$9)	199
Office of Training and Higher Education (CT)	1,355	1,129	1,179	1,135	\$21	1,158
Recruitment (LPHR)	1,929	2,303	2,281	1,205	(\$1,083)	142
Air Traffic Screen (LPHR)	2,893	2,860	1,881	1,084	(\$799)	285
TOTAL	\$19,022	\$15,266	\$18,075	\$10,429	(\$3,547)	\$8,882

ANALYSIS OF WORKLOAD INDICATORS

ORGANIZATION: AHT
ACTIVITY: CENTRALIZED TRAINING

WORKLOAD INDICATOR:	Actual FY 1991	Actual FY 1992	Actual FY 1993	Estimate FY 1994	Estimate FY 1995	FY 1992	FY 1993	FY 1994	FY 1995
STUDENT DAYS									
Air Traffic (AT)	248,595	138,656	44,341	61,300	49,700	-44%	-68%	38%	-19%
(AT Initial Qual)	(227,346)	(114,569)	(18,078)	(30,700)	(30,700)				
Airway Facilities (AF)	263,917	258,654	223,129	168,300	219,000	-2%	-14%	-25%	30%
(AF CBI)	(46,950)	(27,870)	(20,490)	(27,000)	(27,000)				
Reg. Standards & Comp.	69,360	65,350	48,614	53,600	45,600	-6%	-26%	10%	-15%
(Flight Training)	(4,280)	(4,180)	(3,764)	(4,000)	(4,000)				
Security	17,286	13,528	9,788	8,000	9,400	-22%	-28%	-18%	18%
Airports/Logistics/Inst	18,845	20,072	15,246	14,700	14,800	7%	-24%	-4%	1%
Management and General	45,219	46,950	37,839	43,300	29,700	4%	-19%	14%	-31%
Total	663,222	543,210	378,957	349,200	368,200	-18%	-30%	-8%	5%
ENROLLMENTS									
Air Traffic (AT)	8,376	5,754	2,209	2,700	2,200	-31%	-62%	22%	-19%
(AT Initial Qual)	(6,511)	(3,796)	(464)	(575)	(575)				
Airway Facilities (AF)	10,906	11,620	10,739	9,300	12,100	7%	-8%	-13%	30%
(AF CBI)	(4,695)	(2,787)	(2,049)	(2,700)	(2,700)				
Reg. Standards & Comp.	5,521	6,203	5,187	6,600	5,600	12%	-16%	27%	-15%
(Flight Training)	(1,070)	(1,045)	(941)	(1,000)	(1,000)				
Security	1,475	1,436	930	900	1,000	-3%	-35%	-3%	11%
Airports/Logistics/Inst	2,791	3,409	2,596	2,300	2,300	22%	-24%	-11%	0%
Management and General	6,013	6,669	5,902	6,700	4,600	11%	-12%	14%	-31%
Total	35,082	35,091	27,563	28,500	27,800	0%	-21%	3%	-2%

OPERATIONS APPROPRIATION

Human Resource Management

Labor, Personnel, and Human Relations (LPHR) Subactivity. The FY 1995 request is \$129,127,000, a non discretionary decrease of \$5,585,000. Major elements of the LPHR subactivity are staffing analysis; pay and benefits administration; career planning; employee benefits; recruitment systems and operations; and management and employee/labor relations. This subactivity administers the Federal Office of Workers' Compensation Program and unemployment compensation program for the benefit of former employees. The LPHR subactivity also includes both the agency's employee survey program and organizational development activities. The employee survey program provides feedback to supervisors and managers and stimulates collaborative problem solving. FAA-wide organizational development efforts which provide organizational consultation on a broad range of work-place issues, will be especially critical as we implement the National Performance Review and other streamlining initiatives.

Human Resources Management has directed a number of efforts toward recognizing and refining HRM activities over the next five years to respond to changing needs in the agency and in the government. Initiatives underway include system-wide recommendations to provide easy access to HRM information, expert advice to agency managers, and a streamlined HRM enterprise to serve as an agency model. A number of LPHR programs are aimed at improving the selection and retention of the aviation professionals who operate and manage the national aviation system.

The LPHR program will be targeted in FY 1995 on support of line organizations as the agency embarks on streamlining and downsizing endeavors. Within this subactivity are the basic personnel services having to do with selection and retention of employees, as well as services required by employees and managers involved with making organizations more efficient. The alignment and management of human resources in a down-sized environment will place heavy burdens on such HRM programs as Organizational Development (team building and strategic planning), Employee Assistance (counseling to employees with problems which affect job performance), Employee Involvement (group problem solving and consensus decision-making which lead to improved labor-management relationships and partnership with labor organizations), and the SES Candidate Development Program (critical to succession management). HRM's leadership in Diversity Management activities will be increasingly called upon to assure that downsizing is accomplished with the least possible disruption to the accomplishment of our goal for a truly diverse work force.

Planning, Direction, and Evaluation (PD&E) Subactivity. The FY 1995 request is \$1,407,000, a decrease of \$94,000. This subactivity plans, directs and defines human resource program objectives, formulates standards, and evaluates the effectiveness of the agency's human resource management program. The PD&E subactivity includes the Office of the Assistant Administrator for Human Resource Management.

OPERATIONS APPROPRIATION**Human Resource Management****Resource Summary**

	Actual 1991	Actual 1992	Actual 1993	Estimate 1994	Proposed Change	Estimate 1995
CENTRALIZED TRAINING						
Training Program						
Personnel Compensation & Benefits	\$44,481	\$48,898	48,476	48,245	(2,849)	45,398
Other Objects	83,251	95,883	84,641	74,641	(13,207)	61,434
Subtotal	137,732	142,386	133,212	122,886	(18,056)	106,830
Flight Plan						
Personnel Compensation & Benefits	407	423	422	441	(22)	419
Other Objects	13,793	9,980	13,381	7,899	(1,883)	8,028
Subtotal	14,200	10,303	13,813	8,140	(1,886)	6,465
Total	151,932	152,688	147,025	131,026	(17,741)	113,285
LABOR, PERSONNEL & HUMAN RELATIONS						
HRM Programs						
Personnel Compensation & Benefits	100,033	112,606	111,656	119,235	(2,431)	116,908
Other Objects	14,698	10,869	7,176	13,084	(1,292)	11,792
Total	114,821	123,375	118,732	132,423	(3,723)	128,700
Flight Plan						
Personnel Compensation & Benefits	1,046	1,678	1,656	913	(761)	82
Other Objects	3,778	3,387	2,706	1,476	(1,111)	365
Subtotal	4,822	4,963	4,281	2,289	(1,852)	427
Total	119,443	128,338	122,993	134,712	(5,586)	128,127
PLANNING, DIRECTION & EVALUATION						
Personnel Compensation & Benefits	1,196	1,280	1,171	1,223	(72)	1,161
Other Objects	758	1,063	636	278	(22)	268
Total	1,951	2,343	1,708	1,501	(94)	1,407
TOTAL						
Personnel Compensation & Benefits	147,162	162,481	163,189	170,061	(6,126)	163,936
Other Objects	126,194	120,888	108,535	97,178	(17,296)	79,882
Total	\$273,328	\$283,349	\$271,724	\$267,239	(\$23,420)	\$243,819
Total Flight Plan (Memo Entry)						
Personnel Compensation & Benefits	1,453	1,989	1,987	1,254	(773)	481
Other Objects	17,589	13,267	18,087	8,175	(2,774)	8,401
Total	19,022	15,256	18,074	10,429	(3,547)	8,882

OPERATIONS APPROPRIATIONHuman Resource ManagementStaffing Information

STAFFING	Actual 1991	Actual 1992	Actual 1993	Estimate 1994	Proposed Change	Estimate 1995
FTP POSITIONS						
Centralized Training	767	767	829	789	(53)	716
Training Program	8	8	8	8	1	7
Centralized Training Portion of Flight Plan for Training						
Labor, Personnel & Human Relations						
HRM Programs	637	637	650	622	(34)	588
LPHR Portion of Flight Plan for Training	20	25	25	25	(23)	2
Planning, Direction, & Evaluation	24	24	21	21	(3)	18
Total	1,456	1,461	1,533	1,445	(112)	1,331
DIRECT CEILING FTE's						
Centralized Training						
Training Program	795	845	772	729	(26)	703
Centralized Training Portion of Flight Plan for Training	8	8	8	8	0	8
Labor, Personnel & Human Relations						
HRM Programs	679	669	750	767	(62)	705
LPHR Portion of Flight Plan for Training	21	30	30	30	(27)	3
Planning, Direction, & Evaluation	24	21	24	24	(1)	23
Total	1,527	1,573	1,584	1,558	(116)	1,442
END OF YEAR EMPLOYMENT						
Centralized Training (w/Flight Plan)	774	833	785	726	(25)	703
Labor, Personnel & Human Relations (w/Flight Plan)	700	638	626	594	(21)	573
Planning, Direction, & Evaluation	24	21	18	17	(2)	15
Total	1,498	1,492	1,429	1,339	(46)	1,291

Total Flight Plan (Memo Entry)

Positions

FTE's

9

11

OPERATIONS APPROPRIATION

HUMAN RESOURCE MANAGEMENT

The estimate for FY 1995 provides a net decrease of \$23,420,000, 114 FTP positions and -116 FTE's from FY 1994. Changes in requirements for FY 1995 follow:

	(\$000)	CT	LPHR	PD&E
<u>Non-Discretionary Changes</u>	<u>TOTAL</u>			
1 Mandatory Pay Adjustments	(3,608)	(1,692)	(1,914)	(2)
2 Inflation	283	108	143	12
Subtotal, Non-Discretionary Changes	(3,345)	(1,584)	(1,771)	10
<u>Mandatory Increase Associated with New Systems Coming On-Line</u>				
New Equipment Training	3,000	3,000	0	0
<u>Program Decreases</u>				
1 Staffing Reductions	(1,649)	(759)	(865)	(25)
2 Streamlining ADP Support	(460)	(423)	(36)	(1)
3 Awards Reduction	(221)	(108)	(110)	(3)
4 Administrative and Training Travel	(4,895)	(4,526)	(339)	(30)
5 Contracts	(4,553)	(3,908)	(602)	(45)
6 Non-Technical Training	(5,000)	(5,000)	0	0
7 Collegiate Training Initiative (CTI)	(2,750)	(2,750)	0	0
8 Flight Plan	(3,547)	(1,685)	(1,862)	0
Subtotal, Program Decreases	(23,075)	(19,157)	(3,814)	(104)
<u>TOTAL RECOMMENDED CHANGE</u>	<u>(23,420)</u>	<u>(17,741)</u>	<u>(5,585)</u>	<u>(94)</u>

OPS-159

OPERATIONS APPROPRIATIONHuman Resource Management

The estimate for FY 1995 provides a net decrease of \$23,420,000; 114 FTP Positions and 116 FTE's. Changes in requirements for FY 1995 follow:

NON-DISCRETIONARY CHANGES (Net) -92 FTP's, -94 FTE's; -\$3,345,000
 1. Mandatory Pay Adjustments (Net) -92 FTP's; -\$3,608,000

These changes reflect the pay costs associated with FY 1994 end-of-year on-board staffing due to the effects of the agency-wide hiring freeze, the proposed early retirement and voluntary separation initiative, and other mandatory pay changes.

The request includes the following pay changes:

Reduction of \$3,699,000, 52 FTP Positions and 54 FTE's for annualization of FY 1994 EOY staffing levels into FY 1995, excluding those reductions associated with the proposed buy-out initiative. Staffing will be lower at the end of FY 1994 than it was at the end of FY 1993. The savings are the result of a lower FTE requirement to support on-board staff in FY 1995.

Savings of \$3,411,000, 40 FTP positions, and 40 FTE's for annualization of employee separations associated with the Administration's proposed buy-out in FY 1994.

\$760,000 for annualized pay costs associated with the FY 1994 locality pay increase.

\$671,000 for new FY 1995 Within Grade Increases.

\$1,683,000 for the full FY 1995 cost of an estimated 1.6 percent January 1995 pay raise.

\$1,472,000 for employee benefits to accommodate changes in workforce demographics and increases in the agency's cost of Health Benefits and FICA (Social Security) over and above the rate of increase for base pay.

Savings of \$328,000 due to one less compensable day in FY 1995.

OPERATIONS APPROPRIATIONHuman Resource Management

A decrease of \$756,000 for the Worker's Compensation Program (OWCP). In FY 1995 a total of \$77,192,963 is needed to pay the actual Department of Labor bill for compensation costs for on-the-job injuries and deaths suffered by FAA employees.

2. Inflation\$263,000

Price increases totaling \$263,000 are required to meet inflationary needs in such areas as travel, transportation, rents, supplies, contract support and equipment.

MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE\$3,000,000

New Equipment Training\$3,000,000

An increase of \$3,000,000 in the Technical Training budget will provide an additional 1,130 enrollments for training on the maintenance of new equipment being deployed as part of the Capital Investment Plan (CIP). The FAA has changed the appropriation for this type of training as a result of a congressionally directed reevaluation of the appropriate funding for training operations personnel. The deployment of new equipment systems will require continued follow-on technician training to ensure that FAA can certify and maintain the new equipment as it becomes operational. Since the agency is currently midway through implementation of its major effort to modernize the NAS, the pace of systems and equipment delivery is accelerating. Although capital expenditures for the CIP modernization fall under the Facilities and Equipment (F&E) Appropriation, the costs of operating and maintaining the new systems, including training, must now be covered by the Operations Appropriation. These costs are in addition to operating and maintenance costs associated with existing systems which have not yet been replaced or phased out; FAA must continue to cover these costs as new systems are brought on line. The requested increase will fund \$2.0M in travel and per diem and \$1.0M in contract training costs.

OPERATIONS APPROPRIATIONHuman Resource Management

PROGRAM REDUCTIONS.....-22 FTP's, -22 FTE's, -\$23,075,000

1. Staffing Reduction-22 FTP's, -22 FTE's, -\$1,649,000

An FY 1995 staffing reduction of 22 FTP's, 22FTE's and \$1,649,000 is shown as a result of continuing an agency-wide hiring freeze where necessary. This hiring freeze is an important element of the agency's on-going effort to streamline its operations, especially its administrative and support operations, to meet the NPR goals of a more efficient organization. This attrition and early out/buyout authority will hopefully allow the agency to avoid adverse actions in reducing staffing and streamlining the agency.

2. Streamlining ADP Support.....-\$460,000

Savings of \$460,000 will be realized by streamlining the support and maintenance of administrative ADP functions in Washington Headquarters, consistent with the NPR-inspired streamlining and reorganization of Headquarters activities.

3. Awards Reduction.....-\$221,000

Savings of \$221,000 will be realized by reducing funding for employee recognition awards.

4. Administrative and Training Travel.....-\$4,895,000

Savings of \$4,895,000 are anticipated as a result of agency efforts to re-engineer processes, reassess the frequency of operational travel requirements, and use video conferencing. These savings represent a 12 percent reduction from the FY 1994 enacted level of \$41,029,000.

5. Contracts-\$4,553,000

Contractual savings of \$4,553,000 will be accomplished through changes in non-recurring contracts and efforts to control contracting costs. The Human Resource Management program will minimize the inflationary impact of contract renewals, through collaborative negotiations and by overall reductions in many contractual services.

OPERATIONS APPROPRIATIONHuman Resource Management

6. Non-Technical Training-\$5,000,000

A reduction of \$5,000,000 will be realized in executive management and general training by reducing training efforts and staffing. Overall student numbers will be reduced by approximately 30%.

7. Collegiate Training Initiative (CTI)-\$2,750,000

This reduction includes \$750,000 associated with vocational technical institution grants. An equal amount was rescinded by Congress in FY 1994. In addition, \$2,000,000 associated with the Mid-America Resource Consortium (MARC) is being proposed for elimination. An identical rescission was proposed in FY 1994 but not enacted by Congress.

8. Flight Plan.....-\$3,547,000

The Flight Plan for Training has realized many of its improvements and funding for FY 1995 has been reduced by \$3,547,000. Two-thirds of this reduction comes from reductions in management training and a scale down of recruitment efforts.

DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 OPERATIONS APPROPRIATION
 FY 1995 CONGRESSIONAL SUBMISSION
 HEADQUARTERS ADMINISTRATION

	DOLLAR RESOURCES (\$000)			STAFFING			
	PC&B	OTHER OBJECTS	TOTAL	FTP POS	FTE LEVEL		
					TOTAL	FTP	OT/FTP
FY 1993 ACTUAL	\$38,539	\$12,150	\$50,689	574	508	501	7
FY 1994 PROGRAM LEVEL	38,436	9,797	48,233	546	549	542	7
PRICE LEVEL, ANNUALIZATION AND OTHER NON-DISCRETIONARY CHANGES	(508)	25	(483)	(22)	(20)	(20)	0
MANDATORY INCREASES ASSOCIATED WITH NEW SYSTEMS COMING ON-LINE	0	0	0	0	0	0	0
PROGRAM REDUCTIONS (DISCRETIONARY)	(502)	(296)	(798)	(5)	(5)	(5)	0
PROGRAM INCREASES	0	0	0	0	0	0	0
FY 1995 REQUEST LEVEL	\$37,426	\$9,526	\$46,952	519	524	517	7

OPERATIONS APPROPRIATIONHeadquarters AdministrationGeneral Justification

Headquarters Administration activity will require \$48,952,000, 519 positions, and 524 FTE's for FY 1995. This represents a decrease of \$1,281,000, 27 positions, and 25 FTE's from the FY 1994 base of \$48,233,000, 546 positions, and 549 FTE's.

This activity consist of two sub-activities - Administration and The Office of Aviation Safety.

Administration

The Headquarters Administration activity funds the Washington headquarters administrative functions that establish policy and direct and develop programs. The administrative services include: Office of the Administrator and Deputy Administrator, Public Affairs, Policy and Plans, Accounting, Budget, Civil Rights, Government and Industry Affairs, International Aviation, Environment and Energy, Information Technology, and the Executive Directors. All of these activities support the FAA's safety and other workforces to ensure compliance with Federal policies, laws and regulations. These activities also facilitate a thorough and rapid exchange of budget and policy information with the Administration, Congress and users of the aviation system.

Aviation Safety

The Office of Aviation Safety provides the Administrator with an independent perspective on safety of the National Airspace System. Responsibilities encompass: providing leadership by monitoring safety trends; conducting integrated and independent safety analyses and studies; providing safety quality assurance oversight; serving as an independent safety policy advisor; fostering innovative aviation safety outreach; and serving as the focal point for aviation safety data and information which includes the development of the Aviation Safety Advances Analysis Program (ASAAP). In addition, this program conducts in-depth analyses and studies that focus on the underlying systemic causes and factors related to safety concerns. Collision avoidance, flight safety, survivability, human factors, etc., are all safety concerns which cross organizational lines. The application of analytical and appraisal disciplines yields information for FAA managers that provides an integrated, systemic perspective of safety issues and concerns in the civil aviation system.

OPERATIONS APPROPRIATIONHeadquarters AdministrationWORKLOAD MEASURES

	Volume of Activity			--Percent Change--		
	(Act) 1992	(Act) 1993	(Est) 1994	(Est) 1995	1992 1993	1993 1994 1995
Aviation Safety						
Reports in FAA Safety Data Bases *	3,202	3,400	3,600	3,800	6.2%	5.9%
Safety Hotline Reports	1,047	1,381	1,500	1,700	31.9%	8.6%
Aviation Safety System Reports	31,833	33,000	35,000	37,000	3.7%	6.1%
						5.7%

* Near midair collisions, operational errors/deviations, pilot deviations, and pedestrian/vehicle deviations.

OPERATIONS APPROPRIATION

Headquarters Administration

Staffing Information

FTP Positions	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	(Estimated) FY 1994 *	(Proposed) Change	(Estimated) FY 1995
Administration-	398	422	503	475	(24)	451
Aviation Safety-	64	71	71	71	(3)	68
TOTAL	462	493	574	546	(27)	519
Direct FTE's						
Administration-	416	436	440	482	(24)	458
Aviation Safety-	69	65	68	67	(1)	66
TOTAL	485	501	508	549	(25)	524
End of Year Employment						
Administration-	404	419	460	438	(9)	429
Aviation Safety-	66	64	69	65	(1)	64
TOTAL	470	483	529	503	(10)	493

* Reflects a base transfer of 33 vacant authorized positions from System Maintenance to Headquarters Administration to properly align positions with current employment levels. As employment levels decline in future years, further position reductions will be taken.

OPERATIONS APPROPRIATIONHeadquarters AdministrationResource Summary (\$000)

	(Actual) FY 1991	(Actual) FY 1992	(Actual) FY 1993	(Estimated) FY 1994	(Proposed) Change	(Estimated) FY 1995
Administration - PC&B	\$24,876	\$27,213	\$33,107	\$33,349	(\$962)	\$32,387
O.O.	5,998	6,612	4,791	3,490	(227)	3,263
Total	\$30,874	\$33,825	\$37,898	\$36,839	(\$1,189)	\$35,650
Aviation Safety - PC&B	\$4,788	\$4,822	\$5,432	\$5,087	(\$48)	\$5,039
O.O.	8,215	8,206	7,359	6,307	(44)	6,263
Total	\$13,003	\$13,028	\$12,791	\$11,394	(\$92)	\$11,302
TOTAL PC&B	\$29,664	\$32,035	\$38,539	\$38,436	(\$1,010)	\$37,426
O.O.	14,213	14,818	12,150	9,797	(271)	9,526
Total	\$43,877	\$46,853	\$50,689	\$48,233	(\$1,281)	\$46,952

OPERATIONS APPROPRIATIONHeadquarters Administration

The estimate for FY 1995 provides a net decrease of -\$1,281,000, - 27 positions and -25 FTE's from FY 1994.
Changes in requirements for FY 1995 follow:

	(\$000)	ADMIN	AVIATION SAFETY
NON-DISCRETIONARY CHANGES	TOTAL		
1. Mandatory Pay Adjustments (Net)	(510)	(533)	23
2. Inflation	27	16	11
Subtotal, Non-Discretionary Changes	(\$483)	(\$517)	\$34
PROGRAM REDUCTIONS			
1. Staffing Reductions	(385)	(328)	(57)
2. Streamlining ADP Support	(30)	(30)	0
3. Awards Reduction	(117)	(102)	(15)
4. Travel	(266)	(212)	(54)
Subtotal, Program Decreases	(\$798)	(\$672)	(\$126)
TOTAL RECOMMENDED CHANGE	(\$1,281)	(\$1,189)	(\$92)

OPERATIONS APPROPRIATIONHeadquarters Administration

The estimate for FY 1995 provides a net decrease of 27 positions, 25 FTE's, and \$1,281,000. Changes in requirements for FY 1995 follow:

NON-DISCRETIONARY CHANGES (Net) -22 positions, -20 FTE's, -\$483,000

1. Mandatory Pay Adjustments (Net) -22 positions, -20 FTE's, -\$510,000

These reductions reflect the pay associated with FY 1994 end-of-year on-board staffing due to the effects of the FY 1994 agency-wide hiring freeze, the proposed early retirement and voluntary separation Initiative payment and other mandatory pay changes.

The request includes the following pay changes:

Reduction of \$416,000, 7 positions, and 5 FTE's for annualization of FY 1994 EOY staffing levels into FY 1995, excluding those reductions associated with the proposed buy-out Initiative to support on-board staff in FY 1995. The savings are the result of a lower FTE requirement to support on board staff in FY 1995.

Savings of 15 positions, 15 FTE's and \$1,272,000 for annualization of employee separations associated with the Administration's proposed buy-out in FY 1994.

\$329,000 for annualized pay costs associated with FY 1994 locality pay increase.

\$152,000 for new FY 1995 Within-Grade increases.

\$687,000 for the full FY 1995 cost of an estimated 1.6 percent January 1995 pay raise.

\$152,000 for employee benefits to accommodate changes in workforce demographics and increases in the agency's cost of Health Benefits and FICA (Social Security) over and above the rate of increase for base pay.

Savings of \$142,000 due to one-less compensable day in FY 1995.

2. Inflation \$27,000

Price increases totaling \$27,000 are required to meet inflationary needs in such areas as travel, transportation, rents, supplies, contract support and equipment.

OPERATIONS APPROPRIATION

Headquarters Administration

PROGRAM REDUCTION

..... -5 positions, -5 FTE's, -\$798,000

1. Staffing Reductions -5 FTE's, -\$385,000

An FY 1995 staffing reduction of 5 positions, 5 FTE's and \$385,000 is shown as a result of continuing an agency-wide hiring freeze where necessary. This hiring freeze is an important element of the agency's on-going effort to streamline its operations, especially its administrative and support operations, to meet the NPR goals of a more efficient organization. This attrition and early out/buyout authority will hopefully allow the agency to avoid adverse actions in reducing staffing and streamlining the agency.

2. Streamlining ADP Support -\$30,000

Savings of \$30,000 will be realized by streamlining the support and maintenance of administrative ADP functions in Washington Headquarters, consistent with the NPR-inspired streamlining and reorganization of Headquarters activities.

3. Awards Reduction -\$117,000

Savings of \$117,000 will be realized by reducing funding for employee recognition awards.

4. Travel -\$286,000

Savings of \$286,000 are anticipated as a result of agency efforts to re-engineer processes, reassess the frequency of operational travel requirements, and use video conferencing. These savings will represent a 39 percent reduction from the FY 1994 enacted level of \$682,000.

MEA-1

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
MISCELLANEOUS EXPIRED ACCOUNTS

This schedule displays programs of Facilities, Engineering, and Development that no longer require appropriations and thus reflects outlays made under prior year appropriations.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRCRAFT PURCHASE LOAN GUARANTEE PROGRAM

The Secretary of Transportation may hereafter issue notes or other obligations to the Secretary of the Treasury, in such forms and denominations, bearing such maturities, and subject to such terms and conditions as the Secretary of the Treasury may prescribe. Such obligations may be issued to pay any necessary expenses required pursuant to any guarantee issued under the Act of September 7, 1957, Public Law 85-307, as amended (49 U. S. C. 1324 note). None of the funds in this Act shall be available for activities under this head the obligations for which are in excess of \$9,970,000 during fiscal year [1994] 1995. Such obligations shall be redeemed by the Secretary from appropriations authorized by this section. The Secretary of the Treasury shall purchase any such obligations, and for such purpose he may use as a public debt transaction the proceeds from the sale of any securities issued under the Second Liberty Bond Act, as now or hereafter in force. The purposes for which securities may be issued under such Act are extended to include any purchase of notes or other obligations issued under the subsection. The Secretary of the Treasury may sell any such obligations at such times and price and upon such terms and conditions as he shall determine in his discretion. All purchases, redemptions, and sales of such obligations by such Secretary shall be treated as public debt transactions of the United States. (Department of Transportation and Related Agencies Appropriations Act, 1994.)

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRCRAFT PURCHASE LOAN GUARANTEE PROGRAM
Program and Financing (in thousands of dollars)

Identification Code:		FY 1993	FY 1994	FY 1995
69-1399-0-1-402		Actual	Estimate	Estimate
Program by activities:				
10.00	Total obligations	9	150	148
Financing:				
47.00	Budget authority (authority to borrow)	9	150	148
Relation of obligations to outlays:				
71.00	Total obligations	9	150	148
72.47	Obligated balance, start of year: Authority to borrow	28	1	0
74.47	Obligated balance, end of year: Authority to borrow	-1	0	0
90.00	Outlays	36	151	148

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRCRAFT PURCHASE LOAN GUARANTEE PROGRAM

Identification Code:		FY 1993	FY 1994	FY 1995
69-1399-0-1-402		Actual	Estimate	Estimate
Status of Guaranteed Loans (in thousands of dollars)				
Cumulative balance of guaranteed loans outstanding:				
2210	Outstanding, start of year	36,029	26,894	17,759
2251	Repayments and prepayments	-9,135	-9,135	-7,406
2290	Outstanding, end of year	26,894	17,759	10,353
MEMORANDUM:				
2299	Guaranteed amount of guaranteed loans outstanding, end of year	24,205	15,983	9,318
This program is continuing only for the purpose of making payments to private lenders upon default of existing loans by air carriers. No new loan guarantees are being made.				
Object Classification (in thousands of dollars)				
21.0	Travel and transportation of persons	0	9	0
25.2	Other services	9	17	148
43.0	Interest and dividends	0	124	0
99.0	Total obligations	9	150	148

APLG-3

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

AVIATION INSURANCE REVOLVING FUND

The Secretary of Transportation is hereby authorized to make such expenditures and investments, within the limits of funds available pursuant to section 1306 of the Federal Aviation Act of 1958, as amended (49 U. S. C. App. 1536), and in accordance with section 104 of the Government Corporation Control Act, as amended (31 U. S. C. 9104), as may be necessary in carrying out the program for aviation insurance activities under title XIII of the Federal Aviation Act of 1958. (Department of Transportation and Related Agencies Appropriations Act, 1994.)

AIRF-1

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AVIATION INSURANCE REVOLVING FUND
Program and Financing (in thousands of dollars)

Identification Code:		FY 1993	FY 1994	FY 1995
69-4120-0-3-402		Actual	Estimate	Estimate
Program by activities:				
10.00	Total obligations	252	195	195
Financing:				
Unobligated balance available, start of year:				
21.90	Treasury balance	-160	-1,115	-1,000
U. S. securities:				
21.91	Par value	-54,195	-54,805	-58,520
21.92	Unrealized discounts	2,010	1,814	1,814
Unobligated balance available, end of year:				
24.90	Treasury balance	1,115	1,000	1,000
U. S. securities:				
24.91	Par value	54,805	58,520	62,120
24.92	Unrealized discounts	-1,814	-1,814	-1,814
68.00	Budget authority (gross): Spending authority from offsetting collections	2,013	3,795	3,795
Relation of obligations to outlays:				
71.00	Total obligations	252	195	195
72.90	Obligated balance, start of year: Fund balance	1,109	1,134	1,134
74.90	Obligated balance, end of year: Fund balance	-1,134	-1,134	-1,134
87.00	Outlays (gross)	227	195	195

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AVIATION INSURANCE REVOLVING FUND
Program and Financing (in thousands of dollars)

Identification Code:		FY 1993	FY 1994	FY 1995
69-4120-0-3-402		Actual	Estimate	Estimate
	Adjustments to budget authority and outlays:			
	Deductions for offsetting collections:			
88.00	Federal funds	-2,003	-3,785	-3,785
88.40	Non-Federal sources	-10	-10	-10
88.90	Total, offsetting collections	-2,013	-3,795	-3,795
89.00	Budget authority (net)	0	0	0
90.00	Outlays (net)	-1,786	-3,600	-3,600

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AVIATION INSURANCE REVOLVING FUND
Revenue and Expense (in thousands of dollars)

Identification Code:		FY 1993	FY 1994	FY 1995
69-4120-0-3-402		Actual	Estimate	Estimate
0101	Revenue	2,013	3,795	3,795
0102	Expense	-252	-195	-195
0109	Net income or loss	1,761	3,600	3,600

Financial Condition (in thousands of dollars)

		FY 1992	FY 1993	FY 1994	FY 1995
		Actual	Actual	Estimate	Estimate
Assets:					
1000	Fund balance with Treasury and cash: Fund balance with Treasury	1,269	2,249	2,134	2,134
1400	Investments: Treasury securities, par	54,195	54,805	58,520	62,120
1450	Other	-2,010	-1,814	-1,814	-1,814
1499	Subtotal, investments	52,185	52,991	56,706	60,306
1999	Total assets	1,269	2,249	2,134	2,134
Liabilities:					
Accounts payable:					
2010	Public	0	5	5	5
2099	Subtotal accounts payable	0	5	5	5
2299	Accrued payroll and benefits	3	8	8	8
2399	Accrued annual leave (funded or unfunded)	10	4	4	4
2999	Total liabilities	13	17	17	17

AIRF-4

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AVIATION INSURANCE REVOLVING FUND
Financial Condition (in thousands of dollars)

Identification Code:		FY 1992	FY 1993	FY 1994	FY 1995
69-4120-0-3-402		Actual	Actual	Estimate	Estimate
Equity:					
Revolving fund equity:					
Revolving fund balances:					
3210	Cumulative results	53,441	55,223	58,823	62,423
3999	Total equity	53,441	55,223	58,823	62,423
The fund currently provides direct support for the aviation insurance program authorized under Title XIII of the Federal Aviation Act of 1958. Income to the fund is derived from premium deposits for premium insurance coverage issued, income from authorized investments, and binder fees for nonpremium coverage issued. The binders provide aviation insurance coverage for U.S. air carrier aircraft used in connection with certain Government contract operations entered into by the Department of Defense and the Department of State.					

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AVIATION INSURANCE REVOLVING FUND
Object Classification (in thousands of dollars)

Identification Code:		FY 1993 Actual	FY 1994 Estimate	FY 1995 Estimate
69-4120-0-3-402				
11.1	Personnel Compensation: Full-time permanent	188	121	121
11.5	Other personnel compensation	5	4	4
11.9	Total personnel compensation	193	125	125
12.1	Civilian personnel benefits	38	18	18
21.0	Travel and transportation of persons	5	1	1
25.2	Other services	15	25	25
26.0	Supplies and materials	1	1	1
42.0	Insurance claims and indemnities	0	25	25
99.9	Total obligations	252	195	195
Personnel Summary				
Total compensable workyears:				
Full-time equivalent employment		2	2	2
AIRF-6				

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRPORT AND AIRWAY TRUST FUND**

Unavailable collections (in thousands of dollars)

Identification code 20-8103-0-7-402		1993	1994	1995
		Actual	Estimate	Estimate
01.01	Balance, start of year:			
	Par value	10,538,348	7,883,877	7,264,666
02.00	Receipts: Current law	5,056,307	5,406,873	5,783,261
02.01	Interest	1,039,763	872,800	726,500
02.02	Transfer to general fund	-1,794,522		
02.99	Total Receipts	4,301,548	6,279,673	6,509,761
04.00	Total: Balances and collections	14,839,896	14,163,550	13,774,427
Appropriations:				
05.01	Facilities and equipment	-2,301,700	-2,120,104	-2,269,100
05.01	Facilities & Equip proposed rescission		40,257	
05.02	Research, engineering & development	-230,000	-254,000	-266,800
05.03	Grants-in-aid for airports:			
	Appropriation to liquidate			
	contract authority	-2,100,000	-2,200,000	-1,500,000
05.05	Trust fund share of FAA operations	-2,279,321	-2,294,500	-2,379,200
05.07	GSA Rent	-29,887	-37,114	-40,797
05.08	Payments to air carriers	-38,600	-33,423	-25,600
05.99	Total appropriations	-6,979,508	-6,898,884	-6,481,497
06.10	Unobligated balance returned to receipts	23,489		
07.01	Balance, end of year			
	Par value	7,883,877	7,264,666	7,292,930

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRPORT AND AIRWAY TRUST FUND**

The Tax Equity and Fiscal Responsibility Act of 1982 (26 U.S.C. 9502), as amended by the Omnibus Reconciliation Act of 1990 (P.L. 101-508), provides for the receipts received in the Treasury from the 10 percent passenger ticket tax and certain other taxes paid by airway users to be transferred from the general fund of the Treasury to the Airport and Airway Trust Fund. In turn, appropriations are authorized from this fund to meet obligations for airport improvement grants, facilities and equipment, research, and a portion of operations.

The status of the fund is as follows (in thousands of dollars):

	1993 ACTUAL	1994 ESTIMATE	1995 ESTIMATE
Unexpended balance start of year:			
U.S. securities (par)	15,090,296	12,671,636	12,519,720
Cash	112,643	178,158	120,300
Balance of fund, start of year	15,202,939	12,849,794	12,640,020
Cash income during the year			
Government receipts			
from exercise taxes:			
Passenger ticket tax	4,471,698	4,741,861	5,087,279
Waybill tax	255,376	260,910	282,497
Fuel tax	120,473	183,312	175,730
International departure tax	223,287	235,350	252,315
Refund of taxes	(14,527)	(14,560)	(14,560)
Intrabudgetary transaction:			
Interest on investments	1,039,763	872,800	726,500
Transfer to General Fund (P.L. 102-581)	(1,794,522)		
Total annual income	4,301,548	6,279,673	6,509,761

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AIRPORT AND AIRWAY TRUST FUND**

(in thousands of dollars)

	1993 ACTUAL	1994 ESTIMATE	1995 ESTIMATE
Cash outlays during the year:			
Federal Aviation Administration			
Grants-in-Aid for Airports	1,931,239	1,850,200	1,709,900
Facilities and equipment	2,166,371	2,023,151	2,103,062
Facilities and Equip proposed rescission	0	-8,051	-9,662
Research, Engineering & Development	212,312	266,600	278,300
Operations	2,279,313	2,294,500	2,379,200
OST: Payments to air carriers	35,571	25,933	28,729
OST: GSA rent	29,887	37,114	40,797
Total annual outlays	6,654,693	6,489,447	6,530,326
Unexpended balance, end of year:			
U.S. securities (par)	12,671,636	12,519,720	12,482,055
Treasury balance	178,158	120,300	137,400
Balance of fund, end of year	12,849,794	12,640,020	12,619,455
Commitments against unexpended balances:			
Appropriated but not expended	-4,965,917	-5,375,354	-5,326,525
Committed to future appropriations to liquidate outstanding obligations (contract authority)	-2,523,953	-2,013,953	-2,203,953
Unobligated bal of contract authority	-1,092,410	-1,092,410	-604,210
Proposed rescission of CA	488,200	488,200	488,200
Uncommitted cash balance, end of year	4,267,514	4,646,503	4,484,767

At the end of 1994, the uncommitted trust fund balance is estimated to be \$4.6 billion. The 1995 funding levels, including 75 percent of FAA's budget to be financed from the trust fund, will reduce the uncommitted balance to \$4.5 billion by the end of FY 1995.

GRANTS-IN-AID FOR AIRPORTS

(LIQUIDATION OF CONTRACT AUTHORIZATION)

(AIRPORT AND AIRWAY TRUST FUND)

For liquidation of obligations incurred for grants-in-aid for airport planning and development, and for noise compatibility planning and programs under the Airport and Airway Improvement Act of 1982, as amended, and under other law authorizing such obligations, [\$2,200,000,000] \$1,500,000,000, to be derived from the Airport and Airway Trust Fund and to remain available until expended: Provided, That none of the funds in this Act shall be available for the planning or execution of programs the commitments for which are in excess of \$1,690,000,000 in fiscal year [1994] 1995 for grants-in-aid for airport planning and development, and noise compatibility planning and programs, notwithstanding section 506(e)(4) of the Airport and Airway Improvement Act of 1982, as amended. (Department of Transportation and Related Agencies Appropriations Act, 1994.)

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
GRANTS-IN-AID FOR AIRPORTS

Program and Financing (in thousands of dollars)

Identification Code:		FY 1993	FY 1994	FY 1995
69-8106-0-7-402		Actual	Estimate	Estimate
Program by activities:				
10.00	Total obligations	1,805,102	1,690,000	1,690,000
Financing:				
17.00	Recovery of prior year obligations	-74,689	.....	.....
21.49	Unobligated balance available, start of year: Contract Authority	-772,823	-1,092,410	-1,092,410
24.49	Unobligated balance available, end of year: Contract Authority	1,092,410	1,092,410	1,092,410
39.00	Budget authority:	2,050,000	1,690,000	1,690,000
Budget authority:				
Current:				
40.00	Appropriation	2,100,000	2,200,000	1,500,000
40.49	Portion applied to liquidate contract authority	-2,100,000	-2,200,000	-1,500,000
43.00	Appropriation (total)	.....	.....	.....
Permanent:				
69.10	Contract authority (P.L. 100-223)	2,050,000	1,690,000	1,690,000
Relation of obligations to outlays:				
71.00	Total obligations	1,805,102	1,690,000	1,690,000
Obligated balance, start of year:				
72.40	Appropriation	119,423	288,184	637,984
72.49	Contract authority	2,893,540	2,523,953	2,013,953
Obligated balance, end of year:				
74.49	Contract authority	-2,523,953	-2,013,953	-2,203,953
78.00	Adjustment in unexpired accounts	-74,689	.....	.....
90.00	Outlays	1,931,239	1,850,200	1,709,900

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
GRANTS-IN-AID FOR AIRPORTS

Status of Contract Authority (in thousands of dollars)

Identification Code:	FY 1993	FY 1994	FY 1995
69-8106-0-7-402	Actual	Estimate	Estimate
Balance, start of year	3,666,363	3,616,363	2,618,163
Contract authority	2,050,000	1,690,000	1,690,000
Contract authority proposed rescission	.....	-488,200	.....
Appropriation to liquidate contract authority	-2,100,000	-2,200,000	-1,500,000
Balance, end of year	3,616,363	2,618,163	2,808,163

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
GRANTS-IN-AID FOR AIRPORTS

Status of Budget Authority and Outlays (in thousands of dollars)

	FY 1993	FY 1994	FY 1995
	Actual	Estimate	Estimate
Enacted/requested			
Budget Authority	2,050,000	1,690,000	1,690,000
Outlays	1,931,239	1,850,200	1,709,900
Rescission proposal:			
Budget Authority	.....	-488,200	.....
Outlays	.....	.....	.....
TOTAL:			
Budget Authority	2,050,000	1,201,800	1,690,000
Outlays	1,931,239	1,850,200	1,709,900

GRANTS-IN-AID FOR AIRPORTS

(LIQUIDATION OF CONTRACT AUTHORIZATION)

(AIRPORT AND AIRWAY TRUST FUND)

The Airport and Airway Improvement Act of 1982, P.L. 97-248, as amended, provides for airport improvement grants which emphasize capacity development, safety and security needs. To support these objectives, a \$1,690,000,000 program level is requested for 1995.

AIP-5

**APPROPRIATION SUMMARY
FEDERAL AVIATION ADMINISTRATION
GRANTS-IN-AID FOR AIRPORTS (TRUST)
(1987)**

	FY 1993 Actual (1)	FY 1988 Non-Discretionary Changes					FY 1988 Discretionary Changes				
		FY 1984		Increases			Reductions			Increases	
		Enacted Budget (2)	Reductions (3)	Annualizations (4)	Prior Level & Other Non-Offic. Increases (5)	Anticipated Management Savings (6)	Recommended Program Reductions (7)	Recommended Program Increases (8)	FY 1988 Request Level (9)		
RESOURCES:											
Budget Authority	2,000,000	1,890,000	0	0	0	0	0	0	1,890,000		
Program Level	1,800,000	1,890,000	0	0	0	0	0	0	1,890,000		
Outlays	1,931,238	1,850,200	0	0	0	0	0	0	1,799,800		
L.C. Appropriation	2,100,000	2,200,000	0	0	0	0	0	0	1,600,000		
L.C. Balance EOY (Est)	288,184	837,894	0	0	0	0	0	0	428,084		
STAFFING											
FTE POS	0	0	0	0	0	0	0	0	0	0	0
FTE - Total (Subj to Ceiling)	0	0	0	0	0	0	0	0	0	0	0

NOTE: FY 1984 and FY 1988 Pending Congressional Action on Reauthorization Proposal.

GRANTS-IN-AID FOR AIRPORTSGRANTS-IN-AID FOR AIRPORTS

An obligation limitation of \$1,690 million is requested for the airport grant program in FY 1995 for planning and development of the Nation's airports. This request level supports the National Transportation Policy objective of maintaining and expanding the Nation's transportation system, and the Administration's Initiative to improve the Nation's infrastructure by developing sound investment criteria and encouraging capital investments.

Major Objectives:

- Provide grants which are needed to meet airport safety and security regulations or necessary to enhance airport safety and security.
- Provide assistance for high priority projects that meet critical, new, and existing capacity needs of the airport system.
- Fund high priority planning requests that will contribute to airport safety, security, or capacity.
- Fund high priority grant requests for reliever airports, noise compatibility projects, and other projects to meet national goals and objectives.

The request of \$1,690 million reflects the continued demand for capacity as well as other important projects. The Federal objective for airport improvements is to enhance the national system through increasing safety and security, reducing system delays, and providing new capacity to meet anticipated demands. Factors that are considered include national priorities, cost-effectiveness, and local initiatives.

New Initiatives:

The FAA is implementing a program to enhance its Airport Improvement Program's investment criteria. This program will be an ongoing one, beginning in FY 1994 with immediate changes to the AIP project selection process, followed by additional reforms in FY 1995 and thereafter. Ultimately, the program will lead to development of goals and performance measures for a National Airport System that is fully consistent with the National Transportation System. The FAA is also considering limiting Letters of Intent to airside development projects, which enhance system-wide capacity as supported by a benefit-cost analyses.

GRANTS-IN-AID FOR AIRPORTS

Federal Role:

Although Federal aid has long been available to assist communities in developing airports, development at the larger airports is funded primarily by airport fees, revenue bonds, state and local assistance, and private initiatives. Smaller airports generally rely more heavily on Federal grant funds. Federal funding has generally accounted for about 33 percent of all airport investments and is intended to be used as a supplement to funding from other sources. State and local authorities generally pay for terminals, parking structures, etc. The Federal government funds generally are used for the construction of runways, planning and development of the national airports, and other improvements such as noise control, lighting, and weather equipment. Many of the larger airports have significant potential earnings that could be and are used toward their capital investments such as building hangars for the carriers.

Funding Priority:

Funding for safety and security projects required by regulation and for other safety related development (including reconstruction and bringing airports up to standard) receive highest priority. Capacity improvements also receive high priority. The most critical needs in this area are to alleviate current delays and to provide capacity improvements needed to meet traffic projections at the major hub airports. New airport development is supported where needed and feasible, with priority given to areas with high activity levels.

To help ensure that capacity needs are met, the Administration's Reauthorization Bill would increase the discretionary portion of the program to more effectively target funds to those projects that increase capacity. In addition to the discretionary funds, primary airports may direct formula funds to capacity improvements. Noise planning and implementation of noise compatibility studies receive priority within a specific legislated minimum. Funds for master planning are provided for high activity locations that benefit from such a study, and airport system planning is funded in accordance with the legislated minimum.

GRANTS-IN-AID FOR AIRPORTS

Accomplishments:

1. General Overview:

The availability of grant funds to meet growing needs and increasing costs of airport development has helped the Nation achieve a safe and efficient airport system. This system is essential to commerce and supports the national defense.

In addition to Federal grants through the AIP, improvements to the system are also financed by other sources such as airport revenues, State and local aid, and airline improvements in facilities. Beginning in FY 1992, some airports have an additional source of funding in the passenger facility charge (PFC). As of January 1994, 165 airports were approved to collect PFC's totalling more than \$6.8 billion. Funding from all these sources has resulted in an airport system that provides a high level of service in the busiest air commerce system in the world. A listing of PFC locations and associated dollars is included as a separate table to this request.

2. FY 1993 Planning and Development Activity:

In FY 1993, AIP gross obligations totaled \$1,875.2 million of which \$1,829.8 million was for 1,434 new grant agreements and \$45.4 million for increases in existing grant agreements. The new grants included 719 for a total of \$1,298.7 million for primary airports, 72 for \$41.2 million for other commercial service airports, 163 for \$180.2 million for reliever airports, 406 for \$201.0 million for general aviation airports, 65 for \$10.7 million for integrated airport system planning, and \$98.0 million for 9 State Block Grants.

Included in these grant agreements (1,434 for \$1,829.8 million) was \$257.6 million for 109 grants to achieve noise compatibility. This amount included \$146.1 million for the purchase of noise-impacted land adjacent to airports, \$74.2 million for soundproofing residences and schools, and \$37.3 million for other efforts to reduce noise.

GRANTS-IN-AID FOR AIRPORTS**3. Fund Distribution by Work Increments:**

The following table shows the distribution of funds by type of work. This indicates that 52 percent (\$7,542.7 million) for FY 1992-1993 funds have been directed to landing area construction. Land for both development and noise protection has received the next greatest share and accounts for 15 percent (\$2,222.2 million). This table also shows that 46 percent of the funds were discretionary. This includes funds to meet the reliever, commercial service (non-primary), noise, and system planning legislative minimums as well as "pure" discretionary.

In addition, further tables or listings are provided which represent the type of work accomplished with AIP funds between FY 1982 and FY 1993 and the distribution of funds by airport type during the same time period; an AIP split between formula and discretionary grants for FY 1993-FY 1996; a summary of estimated outlay and liquidating cash levels; a listing of all approved Letters of Intent, and a cumulative listing of Passenger Facility Charges approved to date.

GRANTS-IN-AID FOR AIRPORTS

AIRPORT IMPROVEMENT PROGRAM
Federal Funds Allocated by Work Increment
FY 1982 - FY 1993
(\$ Obligations in Millions)

	Discretionary Funds	Formula Funds	Total Funds
1. Planning	\$ 182.1	\$ 97.3	\$ 279.4
2. Safety and Security (Required by Reg.)	408.0	613.1	919.2
3. Landing Area Construction (Includes Noise Work)			
Runways	1,586.3	1,611.1	3,177.4
Taxiways	1,085.0	1,310.9	2,396.0
Aprons	846.2	1,153.2	1,999.4
Subtotal	3,487.5	4,075.2	7,562.7
4. Noise Control (Excluding Landing Area)			
Land	728.3	329.9	1,058.2
Other	392.1	116.2	508.3
Subtotal	1,116.4	446.1	1,564.5
5. Lighting, Navigaids, Weather Equipment	330.2	476.0	806.1
6. Building Terminal			
	20.4	573.6	594.0
	51.3	116.2	167.5
Subtotal	71.6	689.8	761.8
7. Land (Other Than Noise)	837.9	528.1	1,166.1
8. Roadways	183.0	808.6	771.6
9. Miscellaneous	158.0	203.1	361.1
10. State Block Grants	159.4	87.7	247.1
TOTAL	\$ 6,694.2	\$ 7,724.1	\$ 14,418.3

Airport Improvement Program
 Federal Funds Allocated by Airport Type
 FY 1982 - FY 1983
 (\$ in Millions)

Type of Airport	Number of Grants	Obligations Federal Funds	Percent of Funds
Primary	6,484	\$9,801.6	88.0
Other Commercial Service	1,270	826.6	4.3
Reliever	1,820	1,694.2	11.1
General Aviation	4,981	2,060.8	14.3
System Planning	642	89.2	0.6
State Block Grants	18	247.1	1.7
TOTAL	14,215	\$14,418.3	100.0

**AIRPORT IMPROVEMENT PROGRAM
PROGRAM LEVEL SUMMARY (\$ MILLIONS)**

FORMULA GRANTS

	FY 1993	FY 1994*	FY 1995*
Primary Airports	573.8	547.8	523.9
Cargo Service Airports	63.0	59.1	59.1
Alaska (Sec 507(b)(6))	10.5	10.6	10.6
States (General Aviation)	216.0	202.8	202.8
Subtotal Formula Grants	863.3	820.3	796.4

DISCRETIONARY GRANTS

Noise Compatibility	225.0	211.3	211.3
Reliever Airports	180.0	84.5	84.5
Small Commercial Airports	45.0	25.4	25.4
System Planning	9.0	18.9	18.9
Small Airports	49.0	92.7	136.5
Military Airports	40.5	42.3	42.3
Capacity/Safety/Sec/Noise	224.9	230.4	215.4
Carryover (from Formula Grants)	58.3	89.5	89.5
Other Discretionary	75.0	75.5	71.8
Subtotal Discretionary Grants	938.7	869.8	893.6

TOTAL (OBLIGATION LIMITATION)

	1,802.0	1,690.1	1,690.0
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(Note: Numbers may not add due to rounding)

*FY 1994 and 1995 distribution reflects the Administration's Reauthorization Proposal dated 1/26/94.

GRANTS-IN-AID FOR AIRPORTS
Summary of Appropriation Requirements
Outlays and Liquidating Cash (L.C.)
(\$000's)

Unexpended Appropriation Balance, 9/30/92	\$ 119,423
FY 1993 L.C. Appropriation (actual)	2,100,000
FY 1993 Outlays of Contract Authority (actual)	<u>(1,931,239)</u>
Est. Unexpended Appropriation Balance, 9/30/93	288,184
FY 1994 L.C. Appropriation (Enacted)	2,200,000
FY 1994 Outlays of Contract Authority (est)	<u>(1,850,200)</u>
Est. Unexpended Appropriation Balance, 9/30/94	637,984
FY 1996 L.C. Appropriation (Requested)	1,800,000
FY 1996 Outlays of Contract Authority (est)	<u>(1,709,900)</u>
Est. Unexpended Appropriation Balance, 9/30/95	\$ 428,084

LOI COMMITMENTS BY FISCAL YEAR
(\$ in Thousands)

PRIMARY AIRPORTS
(Sorted by Region)
New England Region

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
PVD	6,500 2,200 4,300	6,500 2,200 4,300	6,500 2,200 4,300	6,500 2,200 4,300	6,500 2,200 4,300	6,500 2,200 4,300	6,500 2,200 4,300	8,000 2,400 5,600	2,200 2,200 0	0	0	0	55,700 20,000 35,700
<i>Eastern Region</i>													
BUF	12,515 4,231 8,284	9,559 1,275 8,284	9,559 1,275 8,284	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	31,632 6,761 24,871
ELM	684 684 0	168 168 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	852 852 0
FKL	400 400 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	400 400 0
PIT	7,000 0 7,000	5,000 0 5,000	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	12,000 0 12,000
DCA	16,400 0 16,400	25,000 0 25,000	23,800 0 23,600	17,900 0 17,900	8,000 0 6,000	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	88,900 0 88,900
IAD	5,100 0 5,100	3,800 0 3,800	1,500 0 1,500	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	10,400 0 10,400
<i>Southern Region</i>													
BHM	5,786 2,000 3,786	5,786 2,000 3,786	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	11,572 4,000 7,572

LOI COMMITMENTS BY FISCAL YEAR
(\$ In Thousands)

PRIMARY AIRPORTS (Cont'd)
(Sorted by Region)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
DAB Dona Beach Reg. Formula Discretionary	1,000 1,000 0	2,000 1,000 1,000	1,700 1,700 1,700	1,700 1,700 1,700	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	6,400 2,000 4,400
JAX Jacksonville Intl Formula Discretionary	4,900 2,400 2,500	4,900 2,400 2,500	4,900 2,400 2,500	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	14,700 7,200 7,500
EYW Key West Intl Formula Discretionary	1,283 1,283 0	1,283 1,283 0	1,283 1,283 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	3,849 3,849 0
MCO Orlando Intl Formula Discretionary	9,025 6,600 2,425	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	9,025 6,600 2,425
PFN Panama City-Bay Cnty Formula Discretionary	700 700 0	700 700 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	1,400 1,400 0
ATL Wm B. Hartsfield Formula Discretionary	14,768 14,768 0	5,735 5,735 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	20,504 20,504 0
SAV Savannah Intl Formula Discretionary	3,782 1,782 2,000	2,000 0 2,000	2,000 0 2,000	2,000 0 2,000	1,965 0 1,965	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	11,747 1,782 9,965
CVG Gir Cincinnati Formula Discretionary	14,050 3,050 11,000	19,200 3,200 16,000	17,300 3,300 14,000	10,000 0 10,000	7,000 0 7,000	4,000 0 4,000	3,000 0 3,000	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	74,550 9,550 65,000
SDF Louisville Formula Discretionary	15,500 5,500 10,000	15,700 5,900 10,000	15,900 5,900 10,000	18,100 6,100 10,000	18,300 6,300 10,000	16,635 6,635 10,000	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	96,135 36,135 60,000

LOI COMMITMENTS BY FISCAL YEAR
(\$ in Thousands)

PRIMARY AIRPORTS (Cont'd)
(Sorted by Region)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
GTR													
Golden Triangle Formula	400	400	400	400	400	400	282	0	0	0	0	0	2,682
Discretionary	0	0	0	0	0	0	282	0	0	0	0	0	2,682
GSO													
Piedmont Triad Intl Formula	963	0	0	0	0	0	0	0	0	0	0	0	963
Discretionary	963	0	0	0	0	0	0	0	0	0	0	0	963
RDU													
Raleigh-Durham Intl Formula	4,506	3,701	0	0	0	0	0	0	0	0	0	0	8,307
Discretionary	4,506	3,701	0	0	0	0	0	0	0	0	0	0	8,307
FLO													
Florence Regional Formula	400	235	0	0	0	0	0	0	0	0	0	0	635
Discretionary	400	235	0	0	0	0	0	0	0	0	0	0	635
49J													
Hilton Head Formula	532	532	532	532	532	532	252	0	0	0	0	0	3,446
Discretionary	532	532	532	532	532	532	252	0	0	0	0	0	3,446
MEM													
Memphis Intl Formula	8,230	7,910	13,750	13,770	13,790	12,830	0	0	0	0	0	0	68,280
Discretionary	6,230	6,240	6,250	6,270	6,290	5,330	0	0	0	0	0	0	36,610
BNA													
Nashville Formula	4,000	2,180	2,180	2,180	1,335	0	0	0	0	0	0	0	11,875
Discretionary	4,000	2,180	2,180	2,180	1,335	0	0	0	0	0	0	0	11,875
Southwest Region													
MSY													
New Orleans Intl Formula	11,800	11,800	11,800	11,800	8,646	0	0	0	0	0	0	0	55,848
Discretionary	1,800	1,800	1,800	1,800	1,800	0	0	0	0	0	0	0	9,000
ABQ													
Albuquerque Intl Formula	3,217	3,217	713	0	0	0	0	0	0	0	0	0	7,148
Discretionary	3,217	3,217	713	0	0	0	0	0	0	0	0	0	7,148

LOI COMMITMENTS BY FISCAL YEAR
(\$ in Thousands)

PRIMARY AIRPORTS (Cont'd)
(Sorted by Region)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
AUSN													
New Austin Formula	18,500	13,500	10,000	10,000	10,000	5,000	5,000	15,000	0	0	0	0	87,000
Discretionary	3,500	3,500	0	0	0	0	0	0	0	0	0	0	7,000
	15,000	10,000	10,000	10,000	10,000	5,000	5,000	15,000	0	0	0	0	80,000
DFW													
Dallas/Ft Worth Formula	12,500	12,500	12,500	12,500	12,500	12,500	0	0	0	0	0	0	75,000
Discretionary	0	0	0	0	0	0	0	0	0	0	0	0	0
	12,500	12,500	12,500	12,500	12,500	12,500	0	0	0	0	0	0	75,000
MFE													
Miller Intl Formula	1,058	1,058	583	0	0	0	0	0	0	0	0	0	2,700
Discretionary	1,058	1,058	583	0	0	0	0	0	0	0	0	0	2,700
	0	0	0	0	0	0	0	0	0	0	0	0	0
Great Lakes Region													
IND													
Indianapolis Intl Formula	3,341	7,475	11,114	11,239	0	0	0	0	0	0	0	0	33,168
Discretionary	3,341	3,475	3,614	3,758	0	0	0	0	0	0	0	0	14,187
	0	4,000	7,500	7,481	0	0	0	0	0	0	0	0	19,981
DTW													
Detroit Metro Formula	15,093	15,300	15,500	15,750	18,000	18,250	6,500	6,750	7,000	7,250	7,500	5,055	137,947
Discretionary	5,093	5,300	5,500	5,750	6,000	6,250	6,500	6,750	7,000	7,250	7,500	5,055	73,947
	10,000	10,000	10,000	10,000	12,000	12,000	0	0	0	0	0	0	64,000
TOL													
Toledo Formula	3,040	0	0	0	0	0	0	0	0	0	0	0	3,040
Discretionary	2,187	0	0	0	0	0	0	0	0	0	0	0	2,187
	853	0	0	0	0	0	0	0	0	0	0	0	853
Central Region													
MCI													
Kansas City Intl Formula	2,000	0	0	0	0	0	0	0	0	0	0	0	2,000
Discretionary	0	0	0	0	0	0	0	0	0	0	0	0	0
	2,000	0	0	0	0	0	0	0	0	0	0	0	2,000
Western Pacific Region													
SMF													
Sacramento Metro Formula	4,780	4,780	4,780	4,780	3,580	0	0	0	0	0	0	0	22,700
Discretionary	2,780	2,780	2,780	2,780	2,780	0	0	0	0	0	0	0	13,900
	2,000	2,000	2,000	2,000	800	0	0	0	0	0	0	0	8,800
LAS													
Las Vegas Intl Formula	4,000	4,500	0	0	0	0	0	0	0	0	0	0	8,500
Discretionary	0	0	0	0	0	0	0	0	0	0	0	0	0
	4,000	4,500	0	0	0	0	0	0	0	0	0	0	8,500
RNO													
Reno Cannon Intl Formula	6,545	6,500	6,500	6,500	6,500	6,500	8,500	8,500	8,500	0	0	0	64,545
Discretionary	2,545	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	0	0	0	22,545
	4,000	4,000	4,000	4,000	4,000	4,000	6,000	6,000	6,000	0	0	0	42,000

LOI COMMITMENTS BY FISCAL YEAR
(\$ in Thousands)PRIMARY AIRPORTS (Cont'd)
(Sorted by Region)*Northwest Mountain Region*

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
DVX													
Denver Intl	46,899	46,186	41,186	41,186	41,186	37,119	0	0	0	0	0	0	253,783
Formula	14,899	15,186	18,186	18,186	16,186	14,244	0	0	0	0	0	0	92,888
Discretionary	32,000	31,000	25,000	25,000	25,000	22,875	0	0	0	0	0	0	180,875
SBS													
Steamboat Springs	400	0	0	0	0	0	0	0	0	0	0	0	400
Formula	400	0	0	0	0	0	0	0	0	0	0	0	400
Discretionary	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Primary	269,698	249,106	215,780	184,837	154,235	120,266	30,035	38,250	17,700	7,250	7,500	5,055	1,299,712
Formula	104,550	77,766	59,397	50,457	46,324	38,091	11,735	11,650	11,700	7,250	7,500	5,055	431,474
Discretionary	165,148	171,340	156,384	134,381	107,911	82,175	18,300	26,600	6,000	0	0	0	868,238

RELIEVER AIRPORTS
(All Discretionary Funds)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
(BLV)													
Scott AFB	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	0	0	0	128,000
Subtotal Reliever	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	0	0	0	128,000

GRAND TOTAL

263,698	263,106	225,780	199,837	168,235	134,266	44,035	52,250	31,700	7,250	7,500	5,055	1,425,712
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Passenger Facility Charge

APPLICATIONS APPROVED
AS OF JANUARY 26, 1994

APPLICATION NUMBER AIRPORT/ LOCATION	LOCID	AML LEVEL	YRS	APPROVED COLLECTION	APPROVED DATE	CHARGE EFF. DATE
91-01-C-00-SAV. SAVANNAH INTERNATIONAL SAVANNAH, GA	SAV	JSH	\$3	12	\$39,501,502	01/23/92 07/01/92
92-01-C-00-MSL. MUSCLE SHOALS REGIONAL MUSCLE SHOALS, AL	MSL	SAS	\$3	5	\$104,100	02/18/92 06/01/92
91-01-C-00-LAS. MC CARRAN INTERNATIONAL LAS VEGAS, NV	LAS	SAS	\$3	22	\$944,028,500	02/24/92 06/01/92
92-01-I-00-MSV. MUNTSVILLE INTL-CARL T JONES FIEL MUNTSVILLE, AL	MSV	SAS	\$3	16	\$19,002,366	03/06/92 06/01/92
92-01-I-00-SP1. CAPITAL SPRINGFIELD, IL	SP1	SAS	\$3	2	\$562,104	03/27/92 06/01/92
92-01-C-00-MSP. MINNEAPOLIS-ST PAUL INTERNATIONAL MINNEAPOLIS, MN	MSP	JSH	\$3	2	\$46,355,682	03/31/92 06/01/92
92-01-C-00-GPT. GULFPORT-BILOXI REGIONAL GULFPORT-BILOXI, MS	GPT	SAS	\$3	1	\$384,028	04/03/92 07/01/92
92-01-C-00-PDX. PORTLAND INTERNATIONAL PORTLAND, OR	PDX	SAS	\$3	2	\$17,961,850	04/08/92 07/01/92
92-01-C-00-PIB. HATTIESBURG-LAUREL REGIONAL HATTIESBURG-LAUREL, MS	PIB	SAS	\$3	6	\$119,153	04/15/92 07/01/92
92-01-C-00-DVX. DENVER INTERNATIONAL (NEW) DENVER, CO	DVX	SAS	\$3	34	\$2,330,734,321	04/28/92 07/01/92

APPLICATION NUMBER AIRPORT/ LOCATION	AS OF JANUARY 26, 1994				APPROVED COLLECTION	APPROVED DATE	CHARGE EFF. DATE
	LOCID	AML	LEVEL	YES			
91-01-1-00-TVL. LAKE TAHOE SOUTH LAKE TAHOE, CA	TVL	SAS	\$3	5	\$928,747	05/01/92	08/01/92
91-01-C-00-GTR. GOLDEN TRIANGLE REGIONAL COLUMBUS, MS	GTR	JSM	\$3	14	\$1,693,211	05/08/92	08/01/92
92-01-C-00-LAW. LAWTON MUNICIPAL LAWTON, OK	LAW	SAS	\$2	4	\$334,078	05/08/92	08/01/92
92-01-1-00-TUL. TULSA INTERNATIONAL TULSA, OK	TUL	JSM	\$3	3	\$9,717,000	05/11/92	08/01/92
92-01-1-00-MEM. MEMPHIS INTERNATIONAL MEMPHIS, TN	MEM	JSM	\$3	2	\$26,000,000	05/28/92	08/01/92
92-01-1-00-BUF. GREATER BUFFALO INTERNATIONAL BUFFALO, NY	BUF	SAS	\$3	31	\$189,873,000	05/29/92	08/01/92
92-01-1-00-CHO. CHARLOTTESVILLE-ALBEMARLE CHARLOTTESVILLE, VA	CHO	SAS	\$2	1	\$233,539	06/11/92	09/01/92
92-01-C-00-SJC. SAN JOSE INTERNATIONAL SAN JOSE, CA	SJC	SAS	\$3	3	\$29,228,826	06/11/92	09/01/92
92-01-C-00-MSO. MISSOULA INTERNATIONAL MISSOULA, MT	MSO	JSM	\$3	5	\$1,900,000	06/12/92	09/01/92
92-01-C-00-PSP. PALM SPRINGS REGIONAL PALM SPRINGS, CA	PSP	SAS	\$3	48	\$81,888,919	06/25/92	10/01/92

AS OF JANUARY 26, 1994

APPLICATION NUMBER AIRPORT/ LOCATION	LOCID	AML LEVEL	YRS	APPROVED COLLECTION	APPROVED DATE	CHARGE EFF. DATE
92-01-C-00-OAK. METROPOLITAN OAKLAND INTERNATIONAL OAKLAND, CA	OAK	JSH	33	2	\$12,343,000	04/26/92 09/01/92
92-01-I-00-PHL. PHILADELPHIA INTERNATIONAL PHILADELPHIA, PA	PHL	JBN	33	3	\$76,140,000	04/29/92 09/01/92
92-01-I-00-SBO. SARASOTA-BRADENTON INTERNATIONAL SARASOTA, FL	SBO	SAS	33	13	\$38,715,000	04/29/92 09/01/92
92-01-C-00-CAK. ACKRON-CANTON REGIONAL ACKRON, OH	CAK	SAS	33	4	\$3,594,000	04/30/92 09/01/92
92-01-I-00-CHN. PORT COLUMBUS INTERNATIONAL COLUMBUS, OH	CHN	SAS	33	2	\$7,341,707	07/14/92 10/01/92
92-01-C-00-ERI. ERIE INTERNATIONAL ERIE, PA	ERI	JBN	33	5	\$1,997,885	07/21/92 10/01/92
92-01-C-00-ELR. NEWARK INTERNATIONAL NEWARK, NJ	ELR	SAS	33	3	\$84,400,000	07/23/92 10/01/92
92-01-S-00-JFK. JOHN F. KENNEDY INTERNATIONAL NEW YORK, NY	JFK	SAS	33	3	\$109,980,000	07/23/92 10/01/92
92-01-C-00-LGA. LAGUARDIA NEW YORK, NY	LGA	SAS	33	3	\$67,420,000	07/23/92 10/01/92
92-01-I-00-RFD. GREATER ROCKFORD ROCKFORD, IL	RFD	SAS	33	4	\$1,177,348	07/24/92 10/01/92

APPLICATION NUMBER		AS OF JANUARY 26, 1994						
AIRPORT/ LOCATION	LOCID	AIRL	LEVEL	YRS	APPROVED COLLECTION	APPROVED DATE	CHARGE EFF. DATE	
92-01-I-00-BWI. BALTIMORE-WASHINGTON INTERNATIONAL BALTIMORE, MD	BWI	JSM	S3	10	\$141,866,000	07/27/92	10/01/92	
92-01-C-00-ORH. WORCESTER MUNICIPAL WORCESTER, MA	ORH	JSM	S3	5	\$2,301,382	07/28/92	10/01/92	
92-01-C-00-TWF. TWIN FALLS-SUN VALLEY REGIONAL TWIN FALLS, ID	TWF	TML	S3	6	\$270,000	08/12/92	11/01/92	
92-01-C-00-SEA. SEATTLE-TACOMA INTERNATIONAL SEATTLE, WA	SEA	TML	S3	1	\$28,847,488	08/13/92	11/01/92	
92-01-C-00-MEI. KEY FIELD MERIDIAN, MS	MEI	JSM	S3	2	\$122,500	08/21/92	11/01/92	
92-01-I-00-ABE. ALLENTOWN-BETHLEHEM-EASTON ALLENTOWN, PA	ABE	KL8	S3	3	\$3,778,111	08/28/92	11/01/92	
92-01-C-00-UNV. UNIVERSITY PARK STATE COLLEGE, PA	UNV	JSM	S3	5	\$1,495,974	08/28/92	11/01/92	
92-01-C-00-GTF. GREAT FALLS INTERNATIONAL GREAT FALLS, MT	GTF	JSM	S3	10	\$3,010,900	08/28/92	11/01/92	
92-01-C-00-RSU. SOUTHWEST FLORIDA INTERNATIONAL FORT MYERS, FL	RSU	SAS	S3	22	\$252,548,262	08/31/92	11/01/92	
92-01-C-00-CLE. CLEVELAND-ROPKINS INTERNATIONAL CLEVELAND, OH	CLE	SAS	S3	3	\$34,000,000	09/01/92	11/01/92	

AS OF JANUARY 26, 1994

APPLICATION NUMBER AIRPORT/ LOCATION	LOCID	AHL	LEVEL	YRS	APPROVED COLLECTION	APPROVED DATE	CHARGE EFF. DATE
92-01-C-00-NGV. MORGANTOWN MUNI-WALTER L. BILL HA MORGANTOWN, WV	NGV	KLB	S3	1	\$55,500	09/03/92	12/01/92
92-01-I-00-FRR. KENT COUNTY INTERNATIONAL GRAND RAPIDS, MI	FRR	TWL	S3	6	\$12,450,000	09/09/92	12/01/92
92-01-C-00-DTV. DETROIT METROPOLITAN-WAYNE COUNTY DETROIT, MI	DTV	SAS	S3	17	\$440,707,000	09/21/92	01/01/93
92-01-I-00-ITH. TOWNKINS COUNTY ITHACA, NY	ITH	TWL	S3	6	\$1,900,000	09/28/92	01/01/93
92-01-I-00-BTR. BATON ROUGE METROPOLITAN, RYAN FI BATON ROUGE, LA	BTR	SAS	S3	6	\$9,823,159	09/28/92	12/01/92
92-01-C-00-FLG. FLAGSTAFF PULLIAM FLAGSTAFF, AZ	FLG	KLB	S3	22	\$2,463,581	09/29/92	12/01/92
92-01-C-00-STL. LAMBERT-ST LOUIS INTERNATIONAL ST LOUIS, MO	STL	SAS	S3	3	\$84,607,850	09/30/92	12/01/92
92-01-I-00-MQT. MARQUETTE COUNTY MARQUETTE, MI	MQT	KLB	S3	3	\$459,700	10/01/92	12/01/92
92-01-I-00-D80. DUBUQUE REGIONAL DUBUQUE, IA	D80	JMH	S3	1	\$148,500	10/06/92	01/01/93
92-01-C-00-MNA. NASHVILLE INTERNATIONAL NASHVILLE, TN	MNA	SAS	S3	11	\$143,358,000	10/09/92	01/01/93

APPLICATION NUMBER AIRPORT/ LOCATION	AS OF JANUARY 26, 1994			APPROVED COLLECTION	APPROVED DATE	CHANGE EFF. DATE
	LOCID	AML LEVEL	YRS			
92-01-C-00-MHT. MANCHESTER MANCHESTER, NH	MHT	CLB	83 4	\$5,461,000	10/13/92	01/01/93
92-01-I-00-MAF. HIGHLAND INTERNATIONAL HIGHLAND, TX	MAF	JNH	80 0	80	10/16/92	01/01/93
92-01-C-00-ILE. KILLEEN MUNICIPAL KILLEEN, TX	ILE	TNL	83 2	\$243,339	10/20/92	01/01/93
92-01-C-00-IDA. IDARO FALLS MUNICIPAL IDARO FALLS, ID	IDA	JNH	83 5	\$1,500,000	10/30/92	01/01/93
92-01-C-00-WPW. WESTCHESTER COUNTY WHITE PLAINS, NY	WPW	CLB	83 30	\$27,883,000	11/09/92	02/01/93
92-01-C-00-YON. YAKIMA AIR TERMINAL YAKIMA, WA	YON	SAS	83 2	\$416,256	11/10/92	02/01/93
92-01-C-00-NCH. AGANA NAS AGANA, GU	NCH	CLB	83 1	\$5,632,000	11/10/92	02/01/93
92-01-I-00-TLL. TALLAHASSEE REGIONAL TALLAHASSEE, FL	TLL	JNH	83 6	\$8,617,154	11/13/92	02/01/93
92-01-C-00-GFK. GRAND FORKS INTERNATIONAL GRAND FORKS, ND	GFK	SAS	83 4	\$1,016,509	11/16/92	02/01/93
92-01-I-00-ESC. DELTA COUNTY ESCAMABA, MI	ESC	TNL	83 3	\$158,325	11/17/92	02/01/93

AS OF JANUARY 26, 1994

APPLICATION NUMBER AIRPORT/ LOCATION	LOCID	AML	LEVEL	YRS	APPROVED COLLECTION	APPROVED DATE	CHARGE EFF. DATE
92-01-C-00-TEX. TELLURIDE REGIONAL TELLURIDE, CO	TEX	SAS	\$3	5	\$200,000	11/23/92	03/01/93
92-01-C-00-PWS. PENSACOLA REGIONAL PENSACOLA, FL	PWS	SAS	\$3	3	\$4,715,000	11/23/92	02/01/93
92-01-C-00-ACV. ARCATA ARCATA, CA	ACV	JNH	\$3	1	\$188,500	11/24/92	03/01/93
92-01-C-00-SBP. SAN LUIS OBISPO COUNTY-MCKESNEY SAN LUIS OBISPO, CA	SBP	JNH	\$3	2	\$502,437	11/24/92	02/01/93
92-01-C-00-MCO. ORLANDO INTERNATIONAL ORLANDO, FL	MCO	SAS	\$3	5	\$167,574,527	11/27/92	02/01/93
92-01-1-00-STT. CYRIL E KING CHARLOTTE AMALIE, VI	STT	JNH	\$3	3	\$3,871,005	12/08/92	03/01/93
92-01-1-00-STX. ALEXANDER HAMILTON CHRISTIANSTED ST CROIX, VI	STX	JNH	\$3	3	\$2,280,465	12/08/92	03/01/93
92-01-8-00-IYK. INYOKERN INYOKERN, CA	IYK	TNL	\$3	3	\$127,500	12/10/92	03/01/93
92-01-C-00-ETW. KEY WEST INTERNATIONAL KEY WEST, FL	ETW	SAS	\$3	3	\$945,937	12/17/92	03/01/93
92-01-C-00-MTH. MARATHON MARATHON, FL	MTH	SAS	\$3	2	\$153,556	12/17/92	03/01/93

AS OF JANUARY 26, 1994

APPLICATION NUMBER AIRPORT/ LOCATION	LOCID	AIRL	LEVEL	YRS	APPROVED COLLECTION	APPROVED DATE	CHARGE EFF. DATE
92-02-U-00-CHO. CHARLOTTESVILLE-ALBEMARLE CHARLOTTESVILLE, VA	CHO	SAS	ES	3	\$255,559	12/21/92	09/01/92
92-01-C-00-PLN. PELLSTON REGIONAL - EMMET COUNTY PELLSTON, NJ	PLN	ELB	ES	5	\$440,875	12/22/92	03/01/93
92-01-C-00-COS. COLORADO SPRINGS MUNICIPAL COLORADO SPRINGS, CO	COS	JWH	ES	3	\$5,622,000	12/22/92	03/01/93
92-01-I-00-VLD. WALDOSTA REGIONAL WALDOSTA, GA	VLD	TNL	ES	4	\$260,526	12/23/92	03/01/93
92-01-C-00-GRS. AUSTIN STRAUDEL INTERNATIONAL GREEN BAY, WI	GRS	ELB	ES	10	\$8,140,000	12/28/92	03/01/93
92-01-C-00-BON. RAFAEL HERNANDEZ AGUADILLA, PR	BON	SAS	ES	6	\$1,053,000	12/29/92	03/01/93
92-01-C-00-PSE. MERCEDETA PONCE, PR	PSE	SAS	ES	6	\$866,000	12/29/92	03/01/93
92-01-C-00-SJU. LUIS MUNOZ MARTIN INTERNATIONAL SAN JUAN, PR	SJU	SAS	ES	4	\$49,768,000	12/29/92	03/01/93
92-01-C-00-GJT. WALKER FIELD GRAND JUNCTION, CO	GJT	JWH	ES	5	\$1,812,000	01/15/93	04/01/93
92-01-C-00-SBS. STEAMBOAT SPRINGS/BOB ADAMS FIELD STEAMBOAT SPRINGS, CO	SBS	ELB	ES	19	\$1,867,337	01/15/93	04/01/93

APPLICATION NUMBER		AS OF JANUARY 26, 1994					APPROVED	APPROVED	CHARGE EFF.
AIRPORT/ LOCATION	LOCID	AML	LEVEL	YRS	COLLECTION	DATE	DATE		
92-01-C-00-ILN. MELENA REGIONAL MELENA, NT	ILN	THL	\$3	7	\$1,056,190	01/15/93	04/01/93		
92-01-C-00-SMF. SACRAMENTO METROPOLITAN SACRAMENTO, CA	SMF	ILB	\$3	3	\$24,045,000	01/26/93	04/01/93		
92-01-C-00-ADD. ALTOONA-BLAIR COUNTY ALTOONA, PA	ADD	ILB	\$3	3	\$198,000	02/03/93	05/01/93		
93-01-C-00-JAN. JACKSON INTERNATIONAL JACKSON, MS	JAN	ILB	\$3	2	\$1,918,855	02/10/93	05/01/93		
92-01-C-00-STS. SONOMA COUNTY SANTA ROSA, CA	STS	SAS	\$3	2	\$110,500	02/19/93	05/01/93		
93-02-U-00-SJC. SAN JOSE INTERNATIONAL SAN JOSE, CA	SJC	JNH	\$3	2	99,239,000	02/22/93	05/01/93		
93-01-C-00-SJT. NATVIS FIELD SAN ANGELO, TX	SJT	SAS	\$3	6	\$873,716	02/24/93	05/01/93		
93-01-B-00-SLX. SIOUX GATEWAY SIOUX CITY, IA	SLX	THL	\$3	1	\$204,465	03/12/93	06/01/93		
92-01-C-00-JMW. CHAUTAUKUA COUNTY/JAMESTOWN JAMESTOWN, NY	JMW	JNH	\$3	4	\$434,822	03/19/93	06/01/93		
93-01-C-00-MSY. NEW ORLEANS INTERNATIONAL/NOISANT NEW ORLEANS, LA	MSY	JNH	\$3	7	\$77,800,372	03/19/93	06/01/93		

AS OF JANUARY 26, 1994

APPLICATION NUMBER AIRPORT/ LOCATION	LOCID	AML	LEVEL	YRS	APPROVED COLLECTION	APPROVED DATE	CHARGE EFF. DATE
93-01-C-00-CEG. SPOKANE INTERNATIONAL SPOKANE, WA	CEG	JWH	S3	7	\$15,272,000	03/23/93	06/01/93
93-01-C-00-LAX. LOS ANGELES INTERNATIONAL LOS ANGELES, CA	LAX	KL8	S3	5	\$340,000,000	03/26/93	07/01/93
93-01-I-00-ONT. ONTARIO INTERNATIONAL ONTARIO, CA	ONT	KL8	S3	5	\$49,000,000	03/26/93	07/01/93
92-01-C-00-FWA. FORT WAYNE INTERNATIONAL FORT WAYNE, IN	FWA	THL	S3	22	\$26,563,457	04/05/93	07/01/93
93-01-C-00-DAB. DAYTONA BEACH REGIONAL DAYTONA BEACH, FL	DAB	JWH	S3	6	\$7,967,835	04/20/93	07/01/93
93-01-C-00-MFR. MEDFORD-JACKSON COUNTY MEDFORD, OR	MFR	KL8	S3	2	\$1,066,142	04/21/93	07/01/93
93-02-U-00-BTR. BATON ROUGE METROPOLITAN, RYAN FI BATON ROUGE, LA	BTR	JWH	S3	2	\$8,532,260	04/23/93	12/01/92
93-02-U-00-SPI. CAPITAL SPRINGFIELD, IL	SPI	SAS	S3	2	\$511,854	04/28/93	06/01/92
92-01-C-00-COX. HOUGHTON COUNTY MEMORIAL HAMCOCK, MI	COX	THL	S3	3	\$162,986	04/29/93	07/01/93
93-01-C-00-BLI. BELLINGHAM INTERNATIONAL BELLINGHAM, WA	BLI	JWH	S3	1	\$346,000	04/29/93	07/01/93

APPLICATION NUMBER		AS OF JANUARY 26, 1994				APPROVED	APPROVED	CHARGE EFF.
AIRPORT/ LOCATION	LOCID	AKL	LEVEL	YRS	COLLECTION	DATE	DATE	
93-01-C-00-PLB. CLINTON COUNTY PLATTSBURGH, NY	PLB	TNL	S3	5	\$227,830	04/30/93	07/01/93	
93-02-U-00-RSW. SOUTHWEST FLORIDA INTERNATIONAL PORT RIVERS, FL	RSW	SAS	S3	5	\$48,017,401	05/10/93	11/01/92	
93-01-C-00-IUD. SOMERSET COUNTY BROMFORD, RI	IUD	KL8	S3	5	\$74,690	05/11/93	08/01/93	
93-02-U-00-PHL. PHILADELPHIA INTERNATIONAL PHILADELPHIA, PA	PHL	SAS	S3	5	\$14,250,000	05/14/93	08/01/93	
93-01-C-00-BZN. GALLATIN FIELD BOZEMAN, MT	BZN	SAS	S3	12	\$4,198,000	05/17/93	08/01/93	
93-01-C-00-CLH. WILLIAM R FAIRCHILD INTERNATIONAL PORT ANGELES, WA	CLH	JWH	S3	1	\$52,000	05/24/93	08/01/93	
93-01-C-00-BRD. BRAINERD-CROW WING COUNTY REGIONAL BRAINERD, MN	BRD	KL8	S3	2	\$43,000	05/25/93	08/01/93	
93-02-U-00-GTF. GREAT FALLS INTERNATIONAL GREAT FALLS, MT	GTF	SAS	S3	2	\$157,500	05/25/93	11/01/92	
93-01-C-00-JAC. JACKSON HOLE JACKSON, WY	JAC	JWH	S3	2	\$1,061,183	05/25/93	08/01/93	
93-01-C-00-EAT. PARSONS FIELD MENACHEE, WA	EAT	TNL	S3	2	\$280,500	05/26/93	08/01/93	

AS OF JANUARY 26, 1994

APPLICATION NUMBER AIRPORT/ LOCATION	LOCID	AIRL LEVEL	YRS	APPROVED COLLECTION	APPROVED DATE	CHARGE EFF. DATE
93-01-C-00-CRV. YEAGER CHARLESTON, WV	CRV	JNH	83	5	\$3,254,126	05/28/93 08/01/93
93-02-U-00-BSV. BARTONVILLE INTL-CARL T JONES FIELD BARTONVILLE, AL	BSV	CLB	83	5	\$1,682,431	06/03/93 09/01/93
93-02-C-00-AUS. ROBERT MUELLER MUNICIPAL MARTIN, TX	AUS	JNH	82	2	\$6,189,300	06/04/93 11/01/93
93-02-C-00-LAS. MC CARRAN INTERNATIONAL LAS VEGAS, NV	LAS	SAS	83	1	\$36,500,000	06/07/93 06/01/92
93-01-C-00-FHT. BISHOP INTERNATIONAL FLINT, MI	FHT	CLB	83	37	\$32,296,450	06/11/93 09/01/93
93-01-C-00-CPR. BATHONA COUNTY INTERNATIONAL CASPER, WY	CPR	TNL	83	3	\$506,144	06/14/93 09/01/93
93-01-C-00-EGE. EAGLE COUNTY REGIONAL EAGLE, CO	EGE	JNH	83	5	\$572,609	06/15/93 09/01/93
93-03-C-00-SJC. SAN JOSE INTERNATIONAL SAN JOSE, CA	SJC	SAS	83	2	\$16,245,000	06/16/93 08/01/95
93-01-C-00-MSN. DANE COUNTY REGIONAL-TRUAX FIELD MADISON, WI	MSN	SAS	83	5	\$6,746,000	06/22/93 09/01/93
93-01-C-00-MOW. CHICAGO MIDWAY CHICAGO, IL	MOW	CLB	83	8	\$79,920,958	06/28/93 09/01/93

AS OF JANUARY 26, 1994

APPLICATION NUMBER AIRPORT/ LOCATION	LOCID	AIRL LEVEL	YRS	APPROVED COLLECTION	APPROVED DATE	CHARGE EFF. DATE
93-01-C-00-ORD. CHICAGO O'HARE INTERNATIONAL CHICAGO, IL	ORD	CLB	\$3	6	\$500,418,285	06/28/93 09/01/93
93-01-C-00-IND. INDIANAPOLIS INTERNATIONAL INDIANAPOLIS, IN	IND	SAS	\$3	12	\$117,344,750	06/28/93 09/01/93
93-01-I-00-GCC. GILLETTE-CAMPBELL COUNTY GILLETTE, WY	GCC	TML	\$3	6	\$331,540	06/28/93 09/01/93
93-01-C-00-TOL. TOLEDO EXPRESS TOLEDO, OH	TOL	JNI	\$3	3	\$2,750,896	06/29/93 09/01/93
93-01-C-00-SUN. FRIEDMAN MEMORIAL HAILEY, ID	SUN	TML	\$3	4	\$188,000	06/29/93 09/01/93
93-01-C-00-ROH. ROBERTS FIELD REDMOND, OR	ROH	SAS	\$3	7	\$1,191,552	07/02/93 10/01/93
93-02-I-00-BOL. BRADLEY INTERNATIONAL WINDSOR LOCKS, CT	BOL	CLB	\$3	2	\$12,630,000	07/09/93 10/01/93
93-01-C-00-LBB. LUBBOCK INTERNATIONAL LUBBOCK, TX	LBB	SAS	\$3	6	\$10,699,749	07/09/93 10/01/93
93-01-C-00-FNL. FORT COLLINS-LOVELAND FORT COLLINS, CO	FNL	TML	\$3	3	\$207,857	07/14/93 10/01/93
93-01-C-00-TPA. TAMPA INTERNATIONAL TAMPA, FL	TPA	JNI	\$3	6	\$87,102,000	07/15/93 10/01/93

AS OF JANUARY 26, 1994

APPLICATION NUMBER AIRPORT/ LOCATION	LOCID	AIRL	LEVEL	YRS	APPROVED COLLECTION	APPROVED DATE	CHARGE EFF. DATE
93-02-1-00-CHN. PORT COLUMBUS INTERNATIONAL COLUMBUS, OH	CHN	SAS	S3	3	\$16,270,256	07/19/93	02/01/94
93-01-C-00-LAN. CAPITAL CITY LANSHIRE, MI	LAN	THL	S3	10	\$7,355,483	07/23/93	10/01/93
93-01-1-00-LRD. LANRBO INTERNATIONAL LANRBO, TX	LRD	JNN	S3	20	\$11,983,000	07/23/93	10/01/93
93-01-C-00-NTJ. MONTROSE COUNTY MONTROSE, CO	NTJ	SAS	S3	15	\$1,461,745	07/29/93	11/01/93
93-01-C-00-CTS. CHYERHNE CHYERHNE, WY	CTS	CLB	S3	7	\$742,261	07/30/93	11/01/93
93-01-C-00-PSC. TRI-CITIES PASCO, WA	PSC	SAS	S3	3	\$1,230,731	08/03/93	11/01/93
93-01-1-00-ALW. WALLA WALLA REGIONAL WALLA WALLA, WA	ALW	THL	S3	20	\$1,187,280	08/03/93	11/01/93
93-01-C-00-RHI. RHINELANDER-ONEIDA COUNTY RHINELANDER, WI	RHI	JNN	S3	2	\$167,201	08/04/93	11/01/93
93-01-1-00-CMA. CENTRAL WISCONSIN MOSINEE, WI	CMA	CLB	S3	19	\$7,725,600	08/10/93	11/01/93
93-01-C-00-DCA. WASHINGTON NATIONAL WASHINGTON, DC, VA	DCA	SAS	S3	7	\$146,739,071	08/16/93	11/01/93

AS OF JANUARY 26, 1994

APPLICATION NUMBER AIRPORT/ LOCATION	LOCID	AIRL. LEVEL	YRS	APPROVED COLLECTION	APPROVED DATE	CHARGE EFF. DATE
93-01-C-00-PUB. PUEBLO MEMORIAL PUEBLO, CO	PUB	CLB	83	16	\$1,200,745	08/16/93 11/01/93
93-01-C-00-BGH. BIRMINGHAM REGIONAL/EDWIN A LINK BIRMINGHAM, NY	BGH	JNH	83	4	\$1,872,264	08/18/93 11/01/93
93-01-C-00-HDH. TAMPA VALLEY DAYTON, CO	HDH	THL	83	4	\$332,081	08/23/93 11/01/93
93-01-C-00-CAE. COLUMBIA METROPOLITAN COLUMBIA, SC	CAE	JNH	83	14	\$32,969,942	08/23/93 11/01/93
93-01-C-00-BOS. GENERAL EDWARD L LOGAN INTERNATIO BOSTON, MA	BOS	JNH	83	18	\$598,800,000	08/24/93 11/01/93
93-01-C-00-GUC. GARRISON COUNTY GARRISON, CO	GUC	SAS	83	4	\$702,133	08/27/93 11/01/93
93-01-C-00-SCF. SPRINGFIELD REGIONAL SPRINGFIELD, MO	SCF	SAS	83	3	\$1,937,090	08/30/93 11/01/93
93-01-C-00-JST. JOHNSTOWN-CAMARIA COUNTY JOHNSTOWN, PA	JST	CLB	83	5	\$307,500	08/31/93 11/01/93
93-01-C-00-EUG. HAMILTON SWEET FIELD EUGENE, OR	EUG	THL	83	5	\$3,729,699	08/31/93 11/01/93
93-01-C-00-LEX. BLUE GRASS LEXINGTON, KY	LEX	CLB	83	10	\$12,378,791	08/31/93 11/01/93

AS OF JANUARY 26, 1994

APPLICATION NUMBER AIRPORT/ LOCATION	LOCID	AIRL	LEVEL	YRS	APPROVED COLLECTION	APPROVED DATE	CHARGE EFF. DATE
93-02-U-00-RFD. GREATER ROCKFORD ROCKFORD, IL	RFD	THL	S3	5	\$331,436	09/02/93	12/01/93
93-01-C-00-YUM. YUMA NCAS/YUMA INTERNATIONAL YUMA, AZ	YUM	SLB	S3	10	\$1,678,064	09/09/93	12/01/93
93-01-C-00-IVN. TUEBO-NEW HAVEN NEW HAVEN, CT	IVN	JNH	S3	5	\$2,490,450	09/10/93	12/01/93
93-01-C-00-ANP. WILKES-BARRE/SCRANTON INTERNATIONAL WILKES-BARRE/SCRANTON, PA	ANP	SAS	S3	4	\$2,369,546	09/24/93	12/01/93
93-02-C-00-MCO. ORLANDO INTERNATIONAL ORLANDO, FL	MCO	SLB	S3	1	\$12,957,000	09/24/93	12/01/93
93-01-C-00-FCA. GLACIER PARK INTERNATIONAL KALISPELL, MT	FCA	JNH	S3	6	\$1,211,000	09/29/93	12/01/93
93-01-C-00-CIC. CHICO MUNICIPAL CHICO, CA	CIC	THL	S3	4	\$137,043	09/29/93	01/01/94
93-01-C-00-CSG. COLUMBUS METROPOLITAN COLUMBUS, GA	CSG	JNH	S3	2	\$534,633	10/01/93	01/01/94
93-01-C-00-TYS. MC GHEE TYSON KNOWVILLE, TN	TYS	THL	S3	3	\$5,681,615	10/06/93	01/01/94
93-01-C-00-MRY. MONTEREY PENINSULA MONTEREY, CA	MRY	SLB	S3	6	\$3,960,855	10/08/93	01/01/94

AS OF JANUARY 26, 1994

APPLICATION NUMBER AIRPORT/ LOCATION	LOCID	AIRL LEVEL	YRS	APPROVED COLLECTION	APPROVED DATE	CHARGE EFF. DATE
93-01-C-00-IAD. WASHINGTON DULLES INTERNATIONAL WASHINGTON, DC, VA	IAD	SAS	\$3	10	\$199,752,390	10/18/93 01/01/94
93-02-U-00-TUL. TULSA INTERNATIONAL TULSA, OK	TUL	SAS	\$3	10	\$9,717,000	10/18/93 02/01/94
93-02-C-00-MEI. KEY FIELD MERIDIAN, MS	MEI	CLB	\$3	2	\$155,223	10/19/93 01/01/94
93-03-U-00-CNO. CHARLOTTESVILLE-ALBEMARLE CHARLOTTESVILLE, VA	CNO	JNH	\$3	2	\$41,300	10/20/93 01/01/94
93-02-C-00-SEA. SEATTLE-TACOMA INTERNATIONAL SEATTLE, WA	SEA	SAS	\$3	2	\$47,500,500	10/25/93 01/01/94
93-03-U-00-CNH. PORT COLUMBUS INTERNATIONAL COLUMBUS, OH	CNH	CLB	\$3	2	\$0	10/27/93 01/01/94
93-01-C-00-PMI. PORTLAND INTERNATIONAL JETPORT PORTLAND, ME	PMI	TUL	\$3	7	\$12,233,751	10/29/93 02/01/94
93-01-C-00-RNO. RENO TACANON INTERNATIONAL RENO, NV	RNO	JNH	\$3	5	\$34,263,607	10/29/93 01/01/94
93-02-C-00-GPT. GULFPORT-BILOXI REGIONAL GULFPORT-BILOXI, MS	GPT	CLB	\$3	2	\$607,817	11/02/93 02/01/94
93-01-C-00-ILN. NEW HANOVER INTERNATIONAL WILMINGTON, NC	ILN	JNH	\$3	3	\$1,505,000	11/02/93 02/01/94

AS OF JANUARY 26, 1994

APPLICATION NUMBER AIRPORT/ LOCATION	LOCID	AHL	LEVEL	YRS	APPROVED COLLECTION	APPROVED DATE	CHANGE EFF. DATE
93-02-U-00-HSY. NEW ORLEANS INTERNATIONAL/MOISANT NEW ORLEANS, LA	HSY	JAN	S3	3	\$77,800,372	11/16/93	02/01/94
93-01-C-00-49J. BILTON BEAD BILTON BEAD ISLAND, SC	49J	JAN	S3	5	\$1,542,300	11/19/93	02/01/94
93-01-I-00-SHV. SHREVEPORT REGIONAL SHREVEPORT, LA	SHV	THL	S3	25	\$33,050,278	11/19/93	02/01/94
93-03-I-00-SPI. CAPITAL SPRINGFIELD, IL	SPI	KL8	S0	0	30	11/24/93	02/01/94
93-01-C-00-OTH. NORTH BEAD MUNICIPAL NORTH BEAD, OR	OTH	THL	S3	4	\$182,044	11/27/93	02/01/94
93-01-C-00-DSH. DES MOINES MUNICIPAL DES MOINES, IA	DSH	JAN	S3	3	\$4,444,507	11/29/93	02/01/94
93-01-C-00-PVD. THEODORE F GREEN STATE PROVIDENCE, RI	PVD	SAS	S3	20	\$183,885,286	11/30/93	02/01/94
93-01-I-00-PFH. PANAMA CITY-BAY COUNTY INTERNATIO PANAMA CITY, FL	PFH	THL	S3	13	\$7,422,908	12/01/93	03/01/94
93-01-C-00-PAN. BARKLEY REGIONAL PADUCAH, KY	PAN	KL8	S3	4	\$386,550	12/02/93	03/01/94
93-01-I-00-ALB. ALBANY COUNTY ALBANY, NY	ALB	JAN	S3	11	\$40,726,364	12/03/93	03/01/94

AS OF JANUARY 26, 1994

APPLICATION NUMBER AIRPORT/ LOCATION	LOCID	AML	LEVEL	YRS	APPROVED COLLECTION	APPROVED DATE	CHARGE EFF. DATE
93-02-U-00-SJU. LUIS MUÑOZ MARIN INTERNATIONAL SAN JUAN, PR	SJU	SAS	83	11	\$20,790,061	12/14/93	03/01/94
93-01-C-00-MOT. MINDOT INTERNATIONAL MINDOT, MD	MOT	CLB	83	5	\$1,569,483	12/15/93	03/01/94
93-01-C-00-TYR. TYLER POUNDS FIELD TYLER, TX	TYR	JNH	83	4	\$819,733	12/20/93	03/01/94
93-01-C-00-CKB. BENEDUM CLARKSBURG, WV	CKB	CLB	83	2	\$105,256	12/29/93	04/01/94
93-01-C-00-CRP. CORPUS CHRISTI INTERNATIONAL CORPUS CHRISTI, TX	CRP	SAS	83	4	\$5,540,745	12/29/93	03/01/94
93-02-U-00-TLN. TALLAHASSEE REGIONAL TALLAHASSEE, FL	TLN	TLN	83	4	\$6,715,081	12/30/93	03/01/94
93-01-C-00-LGB. LONG BEACH-DAUGHERTY FIELD LONG BEACH, CA	LGB	SAS	83	4	\$3,533,766	12/30/93	03/01/94
93-02-C-00-MEN. MEMPHIS INTERNATIONAL MEMPHIS, TN	MEN	SAS	83	5	\$24,026,000	01/14/94	04/01/94

AS OF JANUARY 26, 1994

APPLICATION NUMBER

AIRPORT/

LOCATION

LOCID AML LEVEL YRS

REQUESTED
COLLECTIONDISAPPROVED
DATE

92-01-1-00-AUS.

ROBERT MUELLER MUNICIPAL
AUSTIN, TX

AUS JSM \$3 3

\$0 04/21/92

AS OF JANUARY . 26, 1994

APPLICATION NUMBER

AIRPORT/

LOCATION

LOCID

AML LEVEL

YRS

REQUESTED
COLLECTIONWITHDRAWN
DATE

92-01-C-00-PHF.

NEWPORT NEWS/WILLIAMSBURG INTERNA

PHF

KLB

83

4

80

11/20/92

NEWPORT NEWS, VA

93-01-C-00-BDL.

BRADLEY INTERNATIONAL

BDL

KLB

83

0

80

12/23/92

WINDSOR LOCKS, CT

93-02-U-00-ABE.

ALLENTOWN-BETHLEHEM-EASTON

ABE

KLB

80

0

\$6,715,061

04/26/93

ALLENTOWN, PA

93-01-C-00-DAY.

JAMES H COX DAYTON INTERNATIONAL

DAY

KLB

80

0

80

08/27/93

DAYTON, OH

TOTAL APPROVED 171

TOTAL AMOUNT - \$8,762,525,287

TOTAL DISAPPROVED 1

TOTAL AMOUNT - \$0

TOTAL WITHDRAWN 3

TOTAL AMOUNT - \$0

USE TOTAL NO. + AMT. 15

TOTAL AMOUNT - \$198,041,255

NO. OF NOT USED ENTRIES - 175

\$8,762,525,287

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FACILITIES AND EQUIPMENT (AIRPORT AND AIRWAY TRUST FUND)

For necessary expenses, not otherwise provided for, for acquisition, establishment, and improvement by contract or purchase, and hire of air navigation and experimental facilities and equipment as authorized by the Federal Aviation Act of 1958, as amended (49 U.S.C. Ap. 1301 et seq.), including initial acquisition of necessary sites by lease or grant; engineering and service testing including construction of test facilities and acquisition of necessary sites by lease or grant; and construction and furnishing of quarters and related accommodations [of] for officers and employees of the Federal Aviation Administration stationed at remote localities where such accommodations are not available; and the purchase, lease, or transfer of aircraft from funds available under this head; to be derived from the Airport and Airway Trust Fund. [\$2,120,104,000] \$2,269,100,000, of which [\$1,922,104,000] \$2,053,700,000 shall remain available until September 30, [1996] 1997, and of which [\$198,000,000] \$215,400,000 shall remain available until September 30, [1995] 1996: *Provided*, That there may be credited to this appropriation funds received from States, counties, municipalities, other public authorities, and private sources, for expenses incurred in the establishment and modernization of air navigation facilities. (*Department of Transportation and Related Agencies Appropriations Act, 1994; additional authorizing legislation to be proposed.*)

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FACILITIES AND EQUIPMENT (AIRPORT AND AIRWAY TRUST FUND)
Program and Financing (in thousands of dollars)

Identification code
69-8107-0-7-402

Program by activities:	FY 1993	FY 1994	FY 1995
<u>Direct program:</u>	<u>Actual</u>	<u>Estimated</u>	<u>Estimate</u>
00.01 Air Traffic Control Centers	160,455	177,574	26,883
00.01 Engineering, Development Test and Evaluation	567,944	456,055	500,436
00.02 Airport Traffic Control Towers	343,528	438,276	58,194
00.02 Procurement and Modernization of ATC Facilities and Equipment	595,578	832,299	1,227,950
00.03 Flight Service Facilities	36,557	28,405	5,699
00.03 Procurement and Modernization of Non-ATC Facilities and Equipment	55,030	129,003	149,555
00.04 Air Navigation Facilities	120,715	102,221	18,760
00.04 Mission Support	198,192	261,019	271,436
00.05 Housing, Utilities, and Miscellaneous Facilities	173,389	128,000	13,504
00.05 Personnel and Related Costs	182,590	197,698	214,634
00.06 Aircraft and Related Equipment	40,940	14,184	1,332
00.07 Development, Test and Evaluation	12,308	13,604	1,300
00.08 Personnel Compensation, Benefits and Travel	3,517	1,662	317
00.91 Total Direct Program	2,490,743	2,780,000	2,490,000
01.01 Reimbursable Program	28,967	118,105	121,176
10.00 Total Obligations	2,519,710	2,898,105	2,611,176
<u>Financing</u>			
21.40 Unobligated Balance Available, Start of Year	-1,980,858	-1,783,737	-1,123,841
24.40 Unobligated Balance Available End of Year	1,783,737	1,123,841	902,941
25.00 Unobligated Balance Lapsing	8,078	-	-
39.00 Budget Authority (gross)	2,330,667	2,238,209	2,390,276

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FACILITIES AND EQUIPMENT (AIRPORT AND AIRWAY TRUST FUND)
Financing and Outlays (in thousands of dollars)

Identification code
69-8107-0-7-402

	FY 1993 <u>Actual</u>	FY 1994 <u>Estimate</u>	FY 1995 <u>Estimate</u>
<u>Budget Authority:</u>			
40.00 Appropriation	2,301,700	2,120,104	2,269,100
<u>Permanent:</u>			
68.00 Spending Authority from Offsetting Collections	28,967	118,105	121,176
<u>Relation of obligations to outlays:</u>			
71.00 Total Obligations	2,519,710	2,898,105	2,611,176
72.40 Obligated Balance, Start of Year	2,362,223	2,671,184	3,428,033
74.40 Obligated Balance, End of Year	-2,671,184	-3,428,033	-3,814,971
77.00 Adjustments in Expired Accounts	-15,411	- - - -	- - - -
87.00 Outlays (gross)	2,195,338	2,141,256	2,224,238
Adjustments to Budget Authority and Outlays			
<u>Deductions for Offsetting Collections:</u>			
88.00 Federal Funds	-25,896	-105,586	-108,331
88.40 Non-federal Sources	-3,071	-12,519	-12,845
88.90 Total, Offsetting Collections	-28,967	-118,105	-121,176
89.00 Budget Authority (net)	2,301,700	2,120,104	2,269,100
90.00 Outlays (net)	2,166,371	2,023,151	2,103,062
Total			

Note: Line 00.04, Mission Support has an estimated contingent liability of \$92 million (present value) associated with the FAA's long-term lease of facilities at the Mike Monroney Aeronautical Center, Oklahoma City, Oklahoma. This contingent liability will be funded through this account.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FACILITIES AND EQUIPMENT (AIRPORT AND AIRWAY TRUST FUND)
Summary of Budget Authority and Outlays
(in thousands of dollars)

Identification code
69-8107-0-7-402

	FY 1993 <u>Actual</u>	FY 1994 <u>Estimate</u>	FY 1995 <u>Estimate</u>
Enacted/Request:			
Budget Authority	2,301,700	2,120,104	2,269,100
Outlays	2,166,371	2,023,151	2,103,062
Rescission Proposal:			
Budget Authority		-40,257	
Outlays		-8,051	-9,662
Total			
Budget Authority	2,301,700	2,079,847	2,269,100
Outlays	2,166,371	2,015,100	2,093,400

The proposed funding sustains the current infrastructure and supports the FAA plan to modernize and improve the national airspace system. In particular, funds would provide for significant progress in developing the advanced automation system, designed to upgrade air traffic control technology; and the voice switching and control system, to modernize the system's outdated communications network.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FACILITIES AND EQUIPMENT (AIRPORT AND AIRWAY TRUST FUND)
Object Classification (in thousands of dollars)

Identification code
69-8107-0-7-402

Direct obligations

	FY 1993 <u>Actual</u>	FY 1994 <u>Estimate</u>	FY 1995 <u>Estimate</u>
11.1 Full-time permanent.....	102,205	112,078	115,885
11.3 Other than full-time permanent.....	1,305	1,430	1,480
11.5 Other personnel compensation.....	7,045	7,726	7,988
11.8 Special personal services payments.....	142	156	161
11.9 Total personnel compensation.....	110,697	121,390	125,514
12.1 Personnel benefits, civilian.....	39,223	38,274	45,246
21.0 Travel and transportation of persons.....	30,540	33,590	36,479
22.0 Transportation of things.....	4,855	5,634	4,592
23.2 Rental payments to others.....	16,687	19,316	15,745
23.3 Communications, utilities, and other rent.....	6,589	7,780	6,342
24.0 Printing and reproduction.....	473	537	437
25.1 Consulting services.....	- - -	- - -	- - -
25.2 Other Services.....	1,346,713	1,467,673	1,370,582
26.0 Supplies and materials.....	36,411	42,387	34,551
31.0 Equipment.....	603,139	700,465	570,963
32.0 Lands and Structures.....	273,278	317,369	258,694
41.0 Grants, subsidies, and contributions.....	22,052	25,486	20,774
42.0 Insurance claims and indemnities.....	86	99	81
99.0 Subtotal, direct obligations.....	2,490,743	2,780,000	2,490,000
99.0 Reimbursable obligations.....	28,967	118,105	121,176
99.9 Total obligations.....	2,519,710	2,898,105	2,611,176

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FACILITIES AND EQUIPMENT (AIRPORT AND AIRWAY TRUST FUND)
Personnel Summary

Identification code
69-8107-0-7-402

	FY 1993 <u>Actual</u>	FY 1994 <u>Estimate</u>	FY 1995 <u>Estimate</u>
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Direct

Total Compensable Workyears:

Full-Time Equivalent Employment	2,170	2,300	2,300
Full-Time Equivalent of Overtime and Holiday Hours.....	100	100	100

Reimbursable

Total Compensable Workyears:

Full-Time Equivalent Employment	53	55	55
Full-Time Equivalent of Overtime and Holiday Hours.....	4	4	4

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

	<u>Total</u>
Engineering, Development, Test, and Evaluation	\$547,890,000
Procurement and Modernization of Air Traffic Control Facilities and Equipment	\$1,105,758,000
Procurement and Modernization of Non-Air Traffic Control Facilities and Equipment	\$126,535,000
Facilities and Equipment Mission Support	\$273,517,000
Personnel and Related Expenses	\$215,400,000
Total FY 1995 Estimate	\$2,269,100,000

GENERAL JUSTIFICATION

The funding request for fiscal year 1995 is in accordance with the Federal Aviation Administration's comprehensive plan for modernizing and improving air traffic control and airway facilities services. The Facilities and Equipment (F&E) budget request contains projects from the agency's Capital Investment Plan (CIP) that are required to update and maintain America's air traffic control system. The requested funding would finance programs which would enable the agency to support the President's initiative to revitalize the aviation industry and enable the agency to support Secretary Peña's major themes to accommodate demands for aviation services, and at the same time maximize operational efficiency, constrain costs, modernize automation and communication technology and systems, and deal with aging facilities. Particular emphasis is placed on en route and terminal air traffic control, as well as including satellite navigation and landing systems, flight service stations and weather services, communications, navaid inspection by aircraft, and auxiliary services.

The FY 1995 F&E request supports the FAA's effort to expand the capacity of the airport and air traffic systems to provide more direct routings while accommodating the rate, sequence, and speed at which aircraft move through the system. At the same time, the F&E request addresses the fact that many of the FAA facilities are rapidly aging and that maintenance and operations costs are rising. The conceptual basis underlying both the CIP and the F&E request is that safety, capacity, productivity, and economy will be chiefly realized through higher levels of capital investment in automation and satellite technology, the limited consolidation of facilities, and the application of rapidly changing and lower cost technologies in telecommunications. The agency's primary goal is to provide for the safe and efficient use of the nation's airspace, while minimizing constraints on its use.

The following sections will address the relationship of the FY 1995 F&E budget request to the aviation industry, the economy, air traffic demand, benefits of F&E investment, and national priorities. Specifically, section one will address the F&E investment and:

- Aviation technology;
- Aviation activity levels and demand;
- The magnitude of the air traffic control mission;

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

- The agency's goals and their link to users and industry benefits.

Sections two, three, and four of the general justification will discuss the impact of the agency's capital investment on the aviation industry and the importance of aviation to the U.S. economy, demonstrate the relationship between the F&E budget to major administration themes, and examine the impact to the public and the aviation industry of delaying the F&E modernization effort.

SECTION 1: OVERVIEW

The FAA's F&E projects contribute to achieving five major administration themes: strengthening transportation's role in supporting the economy; supporting the safety of our transportation system; strengthening the linkage between transportation and environmental policy; advancing U.S. transportation technology and expertise; and fostering intermodalism. The portion of the F&E budget that supports each of these major administration themes is shown in Figure 1-1.

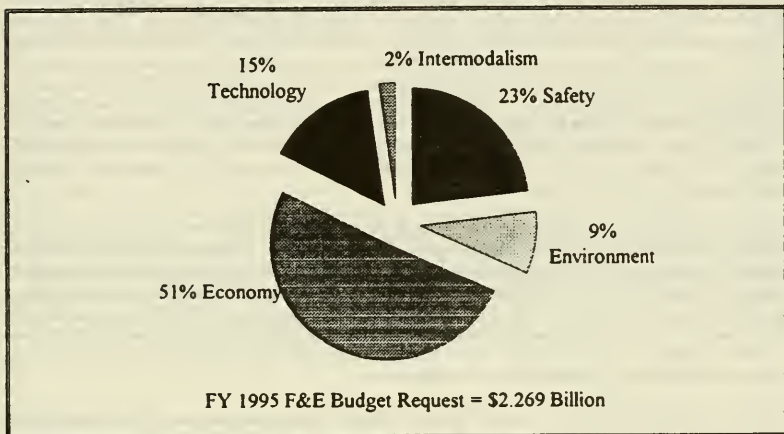


Figure 1-1 FY1995 F&E Budget Supports Major Administration Themes

By providing new controller automation and navigation and landing aids, the F&E program will help to increase the capacity of the national airspace system (NAS) so that aviation can keep pace with and foster economic growth. Air traffic delay reductions will not only decrease airline operating costs but will also help to protect our environment by decreasing consumption of aviation fuel and reducing air pollution from aircraft engine emissions. Aviation safety will be improved by the implementation of new weather information products. Increased landing aids will foster intermodalism by reducing the number of canceled

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

or diverted flights so that passengers and cargo arrive as scheduled to link-up with other modes of transportation. FAA's NAS modernization program will help to ensure that the U.S. maintains its position as the world leader in aviation technology.

The FAA's equipment and technology sharpens our worldwide competitive edge in aviation and aviation technology. To maintain that advantage, and to encourage innovation and creativity, additional continuing investments are necessary in facilities and equipment. The FAA is leading the international move toward using satellite technology to reduce the dependence on ground based navigation, communication, and surveillance systems. Technological opportunities for U.S. manufacturers will be created by a growing worldwide demand for aeronautical products and systems, including: systems to support the integration of the ground air traffic management (ATM) system, communications and navigation using satellites and data link, aircraft automatic dependent surveillance, weather forecasting, and avionics equipment.

In addition, investments in air traffic control modernization will lessen the operating costs of U.S. airlines which have suffered unprecedented financial losses in recent years. Since 1989, U.S. airlines have lost over \$8 billion which is more than all the profits made by the airlines in the preceding 44 years. There are several F&E projects that are expected to provide substantial fuel savings and crew cost savings directly to the airlines by reducing delays in terminal areas and providing more user-preferred flight altitudes and routes. In the oceanic area, projects such as oceanic automation, automatic dependent surveillance and satellite communications are expected to produce significant operating cost savings to carriers through reduced separation standards and more fuel efficient altitudes and routes. In terminal areas, projects such as terminal air traffic control automation (TATCA) and precision runway monitors are expected to increase arrival capacities and thereby reduce delays. F&E projects such as the above could have a significant impact on restoring economic health to the aviation industry.

Aviation activity is expected to continue to grow at significant rates. Forecasts project the increasing contribution of international aviation activity. While domestic passenger enplanements and miles flown are forecasted to increase 52 and 56 percent, respectively, between 1993 and 2004, international passenger enplanements and miles flown are forecasted to nearly double over the same time period. Total hours flown by U.S. commercial carriers is forecasted to increase from an average of nearly 30,000 hours a day to over 40,000 hours a day over the same period. By 2004, over 800 million passengers will enplane each year, about 2 million passengers a day. This increase in aviation activity provides the U.S. with an opportunity to enhance its technological leadership and to create new jobs.

The U.S. supervised airspace is 14 percent of the earth's surface, encompassing not only the land mass of the U.S. (2.3%), but also significant portions of the Atlantic and Pacific Oceans (11.7%). To safely and efficiently provide aviation services in this vast area, the FAA operates and maintains a network of more than 24,000 facilities including navigation, landing and communications equipment. The FAA also provides staff at more than 600 air traffic control facilities including air route traffic control centers (ARTCC), terminal radar approach control facilities (TRACON), air traffic control towers (ATCT), and flight service stations (FSS). These facilities together are the primary components of the NAS. Through the projects funded by the F&E budget, the FAA modernizes and upgrades the NAS, to ensure that the mission is achieved and that aviation continues to provide the platform for economic growth.

The FAA has established specific goals to improve safety, increase capacity and efficiency, and improve

F&E-x

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

operations which are listed below.

- Reduce civil aviation fatality rate by at least 10 percent by 2000;
- Reduce the number of accidents attributable to weather by 20 percent by 2000;
- Reduce weather-related delay costs by 15 percent by 2005;
- Ensure that system capacity will meet demand;
- Provide more user preferred routes and altitudes to minimize aircraft operating costs;
- Reduce airport runway incursions by 80 percent by 2005;
- Accommodate a projected doubling of oceanic air traffic demand by 2010.

SECTION 2: IMPORTANCE OF AVIATION TO THE U.S. ECONOMY

The role of aviation in contributing to the health of the U.S. economy is well documented. The FAA's F&E program enhances the infrastructure required for aviation growth. F&E spending also creates high skill professional and technical jobs and increases economic activity. This section demonstrates these relationships and highlights the importance of aviation to the continued growth of the economy.¹

F&E expenditures of \$1.88 billion in FY 1992 supported infrastructure improvements in air navigation, flight service, centers and towers, and related support items. As shown in Figure 2-1, these expenditures generated almost 68,000 jobs. Of these jobs, 20,700 are considered "direct" jobs, which include FAA employees who develop and manage the F&E program, contractor engineering support, and the employees hired by equipment manufacturers and construction firms throughout the country to design, manufacture, build, and install the purchased equipment, systems, and facilities. About 47,000 additional jobs were created by these direct employees spending their paychecks in their local communities. Including these "multiplier effects", the \$1.88 billion in F&E expenditures generated \$5.73 billion in economic output.

¹The data provided in Section 2 is excerpted from a study entitled "The Economic Impact of Civil Aviation on the U.S. Economy", April 1993, by Wilbur Smith Associates

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

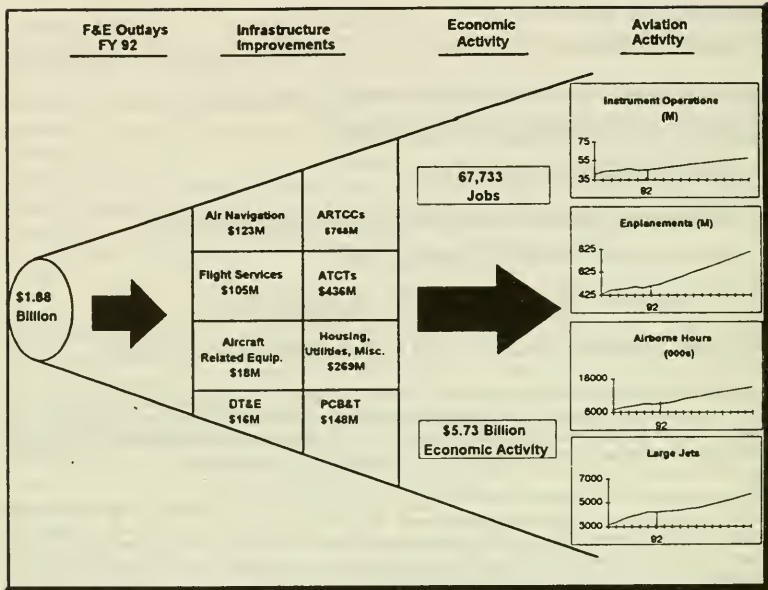


Figure 2-1 F&E Spending Supports Aviation Infrastructure

Primarily, however, these F&E expenditures provide for improvements to the air traffic control infrastructure that supports the forecasted growth in aviation activity. As shown by the four charts on the right of Figure 2-1, aviation activity is expected to increase significantly from 1992 through the year 2004. For example, instrument operations will increase from about 45.6 million in 1992 to over 58 million in 2004, an increase of almost 30 percent. Enplanements will increase over those 12 years from approximately 504 million to 808 million, an increase of 60 percent. Airborne hours and numbers of large jets, as shown in the bottom two charts, will increase 48 and 37 percent respectively. (For additional forecast information, please see the National Aviation System Activity forecast which follows the general justification.)

Figure 2-2 shows the total impact of civil aviation activity on the U.S. economy. This assessment is based on 1991 information, and includes "multiplier effects" based on the Department of Commerce Input/Output Model. Commercial aviation, including airlines, air cargo, air commuter, passenger expenditures, commercial aircraft manufacturing, and commercial service airports, generated over 93 percent of aviation's

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

total economic impact. The remaining 7 percent is created by general aviation, which includes air taxi, corporate and private aviation, helicopters, general aviation airports, flight schools, fixed base operators, passenger services, and general aviation manufacturing. Although general aviation seems small in comparison to commercial aviation, it is still a major industry that generates over 500,000 jobs and more than \$45 billion in economic activity.

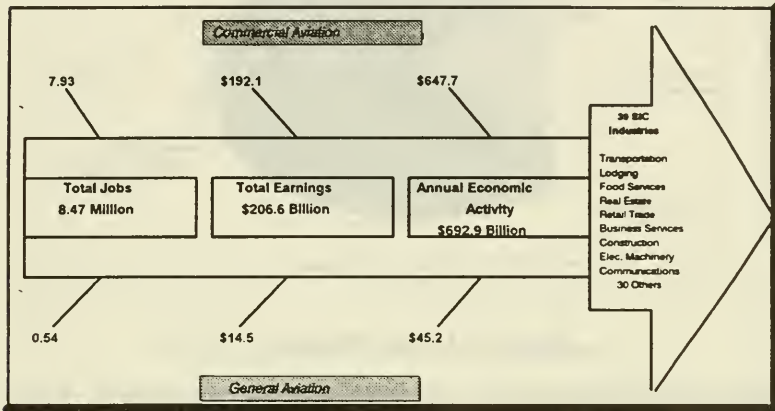


Figure 2-2 Aviation Has Broad Impacts

Including multiplier effects, in 1991, civil aviation provided 8.5 million jobs with total earnings of \$207 billion, and a total annual economic activity of almost \$700 billion. This equates to approximately a 6% contribution to the Gross National Product (GNP) in 1991. This economic activity involves not only the transportation industry, but also 38 additional standard industrial classification (SIC) industries, including lodging, food services, real estate, and construction. The printer who prints the airline schedule and the steel worker whose steel is used in the aircraft and in the airport rental car are also affected by aviation. Virtually every industry benefits from aviation provision and/or aviation use.

The aviation-related industries are comprised of several sectors. These are shown in Figure 2-3, which reflects the portion of jobs attributable to each. Almost 60 percent of the jobs provide goods and services to air passengers, including for example, hotel, restaurant, and car rental employees. Almost 300,000 jobs are created by the travel industry, which is an industry that depends heavily for its existence on air travel. The airlines and general aviation provide almost 1.7 million jobs while airports and facilities provide almost 600,000 jobs. The aircraft and parts manufacturing sector creates almost 900,000 jobs. An additional 60,000 jobs are created in other services, including medical examinations, training, and pilot certification.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

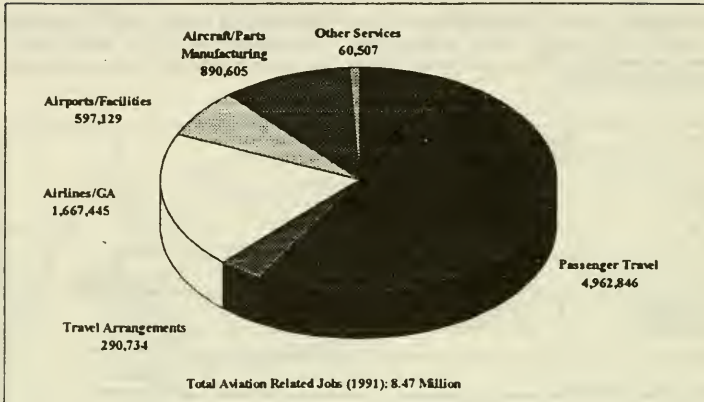


Figure 2-3 Aviation Means Jobs

Figure 2-4 shows the portion of economic activity attributed to each sector of the aviation industry. More than half of the economic activity is attributed to passenger expenditures on, for example, hotels, rental cars, restaurants, and entertainment. The airlines and general aviation produce 22 percent of aviation's economic activity, while aircraft manufacturing accounts for 17 percent. FAA's F&E expenditures are counted within the airports and facilities sector, which generates 7 percent of aviation's economic activity.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

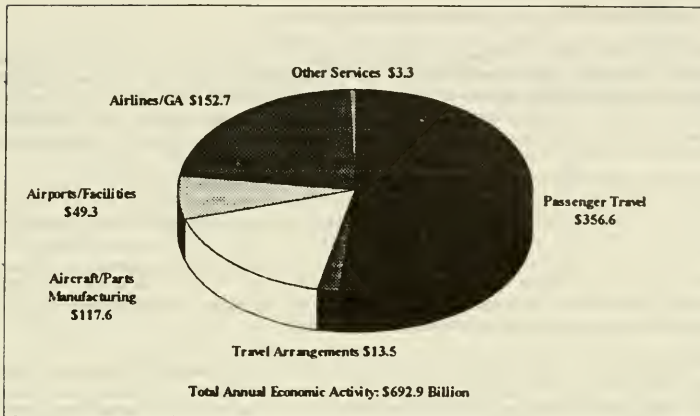


Figure 2-4 Aviation Generates Economic Activity

Overall, civil aviation is a major contributor to national output, and its role is expected to continue growing throughout the 1990's and into the 21st century. Estimates in constant 1991 dollars of the total aviation impacts in the year 2000 may approach:

- \$868.2 billion in economic activity, an increase of 25 percent over 1991 levels,
- \$226.2 billion in earnings, and generate,
- 9.3 million jobs, a 10 percent increase over 1991 levels.

However, all of the current aviation-related economic activity, and its anticipated growth into the 21st century, is heavily dependent on the continued safe operation and enhancement of the nation's air traffic control system. Continued investment in FAA's F&E program is necessary to support this vital part of the nation's economy.

SECTION 3: F&E RELATIONSHIP TO MAJOR ADMINISTRATION THEMES

The FAA's F&E investments support all major administration themes, as well as other administration policy objectives. The relationship of specific F&E projects to each theme is described below.

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Strengthening Transportation's Role in Supporting the Economy

When fully implemented, current F&E projects will help the airlines to realize fuel and other direct operating cost savings via shorter flight routes and decreased delay. For planned projects from 1993 on, air carriers are estimated to save nearly 38 billion gallons of fuel and over 32 million aircraft hours. These direct operating cost savings, equate to over \$60 billion dollars through 2025, or on average nearly \$2 billion annually -- nearly enough to cover the airlines total losses for 1992. Modern automation systems are needed to safely implement new air traffic control procedures that reduce fuel consumption and other airline operating costs. These cost savings are of vital importance to restoring the health of the domestic airline industry.

Staggering losses in the airline industry have forced cancellation of new aircraft orders. These cancellations have had a severe effect on our domestic aircraft manufacturing industry. The economic health of this industry is important to both the U.S. domestic economy and the U.S. balance of payments. Merchandise exports of civilian aircraft, engines, and parts totaled more than 8 percent of total U.S. exports in 1992. F&E projects will help to reduce airline operating costs, thereby helping the airlines return to profitable status and, in turn, aiding in the recovery of the aircraft manufacturing industry.

The air transportation system is vital to the U.S. economy in terms of transporting tourists, business travelers, and cargo. NAS system capacity growth must keep pace with economic growth to meet commerce travel needs. Air carrier aircraft operations are forecast to increase at an annual rate of 2.2 percent during the 12 year period 1992-2004, and total instrument and instrument flight rule (IFR) aircraft handled are both forecast to increase at a 2 percent average annual growth rate over the same time period. Of the top 100 airports in the United States, 23 exceeded 20,000 hours of flight delays in 1990. If capacity is not increased to meet increased traffic, the number of airports exceeding 20,000 hours of delay is projected to increase to 40 by the year 2000. F&E investments in new automation, surveillance, landing, navigation aids, and associated facility expansions and modernization will increase airport capacity with existing runway resources and improve en route airspace routings.

In addition, the FAA must invest in the necessary infrastructure to support local airport improvement projects. For example, the F&E program will have provided over \$206 million for air traffic control, surveillance, navigation and landing equipment requirements for the Dallas Ft. Worth Metroplex. Currently, 18 of the 23 delay-problem airports are in the process of constructing or planning for the construction of new runways or extensions to existing runways. The F&E program provides the new navigation, landing, and lighting systems and FAA facility expansions needed to operate these new runways. The F&E program invests in the infrastructure improvements and new technologies to ensure that added demand for airspace and airport capacity is met efficiently.

Supporting the Safety of our Transportation System

The U.S. air traffic control system is the safest in the world. F&E projects will ensure that growth in aviation demand is met without compromising safety. To improve on our safety record, new technologies have emerged that provide controllers and pilots with better information regarding, for example, weather phenomenon such as wind shear and microbursts. Currently planned F&E projects are expected to prevent the loss of over 6,500 lives and over 9,000 injuries through the year 2025.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

The FAA must also invest to ensure the safety and security of its workforce. FAA facilities are aging, with many facilities between 20-40 years old. Investment is needed to ensure that these facilities meet Occupational Safety and Health Administration and Environmental Protection Agency regulations. A major expense is continued efforts of asbestos abatement. Of the 436 FAA Air Traffic Control Towers, Asbestos Inspection Reports have been completed for 169 towers. These reports found that 11.8 percent of those towers surveyed required immediate priority action to minimize the potential health and safety threat to FAA employees. An additional 17.2 percent of towers require high priority action. Federal regulations dictate that improvements to FAA facilities be made if these facilities are to remain operational.

Investments must also be made to replace those facilities for which air traffic growth can no longer be handled by the existing facilities. To maintain safety, new towers must be built when construction on airports, such as new terminals and hangars, causes restricted views in the tower.

Strengthening the linkage between Transportation and Environmental policy

To ensure ATC service availability, the FAA maintains engine generators to generate power in the event of a power outage. Currently, the FAA maintains over 3000 underground tank sites primarily for petroleum fuels to power these engine generators. The 1984 Resource Conservation and Recovery Act, as well as more stringent State laws, regulate the leak detection and corrosion and overfill protection standards of these tanks. Under the Federal Facility Compliance Act, the Federal Government must comply with these regulations. F&E funding is required to bring tanks into compliance, so that they can continue to be operated, and thereby, ensure that air traffic control service is provided during commercial power outages. By taking the necessary precautions to prevent fuel from contaminating ground water, these tank upgrades ensure that the quality and safety of the nation's water supply is not put at risk.

F&E funds are also needed to ensure that the FAA complies with all laws and regulations regarding hazardous materials to ensure that those materials used in air traffic control equipment and facilities are safely and properly disposed, and do not harm our environment.

More fuel efficient routes, increased granting of user preferred trajectories and altitudes, increased system capacity, and decreased delays realized through the implementation of currently planned F&E projects are estimated to save the user community more than 39 billion gallons of aviation fuel through 2025. These savings will significantly contribute toward conserving our limited national resources, will lessen U.S. dependence on foreign oil, and reduce air pollution.

Advancing U.S. Transportation Technology and Expertise

The U.S. air traffic control system is the most technologically advanced and sophisticated in the world. Investment is needed to replace outdated portions of the system with modern technologies to ensure that our system continues to be the world's best. The NAS must also utilize the latest navigation, communication, and landing systems, such as satellite systems, to ensure that our airlines obtain those cost-savings available with modern technology. For example, use of global navigation satellite systems will enable precision approaches nationwide without the extensive ground equipment required by today's systems, and it offers the potential to reduce aircraft avionics costs via provision of navigation and approach capabilities in one system. Investments in these technologies will assure our airlines, aircraft manufacturers, and domestic systems manufacturers that they can compete in the international market and continue to lead the world in aviation.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

In order to maintain our technological leadership in air traffic control while maintaining safety as system demand grows, the new communication and automation systems will be state of the art with an extremely high degree of availability. The Advanced Automation System (AAS) will provide automatic reconfiguration capabilities to better meet real-time user demand and permit increased granting of user preferred trajectories and altitudes. The new voice switch which supports AAS in the en route centers, called the Voice Switching and Control System (VSCS), will have an availability of seven 9's. In other words, the switch can only be inoperable for 3 seconds a year. Terminal Air Traffic Control Automation (TATCA) is cutting edge technology which uses detailed aircraft aerodynamic modeling married with artificial intelligence to model controller and pilot intent. This system will provide advisories directly to controllers to assist them in optimizing traffic flow management, and uses an architecture based on the latest workstation technologies. Aeronautical data-link will advance the state-of-the-art in air-to-ground communications through a seamless communications structure that is interoperable with satellite, Mode S, and VHF technologies.

Surveillance data rate and radar and display accuracy improvements will enable simultaneous parallel approaches under instrument weather conditions to runways spaced more closely together than is permitted today through the use of Precision Runway Monitors. This system includes the use of electronic scan technology to improve the radar update rate to once every 0.5 seconds compared to the 4.8 second update rate of conventional airport surveillance radars. This system lays the foundation for future implementation of triple and quadruple simultaneous approaches which will greatly increase an airport's capacity in the absence of infrastructure expansion.

State-of-the-art weather products will identify the timing and location of weather hazards with a high degree of precision, facilitating both delay savings and increased safety. The Aviation Weather Products Generator (AWPG) will provide controllers in the en route centers with 4-dimensional weather information (3 dimensional plus time), and enable better descriptions of both current state and forecasted weather conditions. In the terminal area, the Integrated Terminal Weather System (ITWS) will integrate multiple terminal weather products and provide a unified picture of real-time weather information for controllers. In addition, ITWS will automatically resolve potentially conflicting data from multiple weather information sources.

Fostering Intermodalism

The air traffic control system is a pivotal link between multiple passenger and cargo transportation modes. F&E improvements to precision landing capabilities will help to decrease the number of canceled and diverted flights during instrument meteorological conditions, thus helping to ensure that passengers and cargo arrive at their intended destination where other established transportation links are waiting to transfer goods and people to their final destinations.

As discussed previously, the F&E plan projects will make a significant contribution to reducing aircraft delays. Delay reductions will help passengers and cargo remain on schedule to meet their planned departure time on the next mode of transportation.

As shown by the above examples, F&E projects improve current services or provide new capabilities which will enable cost reductions for both users and the FAA. The benefits from these investments contribute to achieving major administration themes. Examples of specific F&E project contributions to these major administration themes and attendant user benefits are presented in Table 3-1.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Project	Feature	Benefits	Major Administration Themes				
			Economy	Safety	Environment	Technology	Intermodalism
En Route Projects							
Advanced Automation System	- Improved system efficiency via increased user preferred trajectories and altitudes - Replaces obsolete automation equipment	- Reduce User Operating Costs - Reduce Flight Delays - Increased User Preferred Trajectories and Altitudes	●			●	
Oceanic Automation System	Decreased oceanic separation standards	- Reduce User Operating Costs - Reduce Flight Delays - Increased User Preferred Trajectories and Altitudes	●				
Terminal Projects							
DFW Metroplex	Service forecasted air traffic growth in the Dallas-Ft. Worth areas	- Reduce User Operating Costs - Reduce Flight Delays - Regional Economic Growth	●			●	
ATCT/TRACON Modernization/ Replacement	- Replace obsolete environmental equipment, aging facilities - Remove facility space constraints	- Provide space for growth - Modernize environmental systems - Remove Environmental Hazards	●			●	
Terminal Air Traffic Control Automation	Provide terminal aircraft spacing automation	- Reduce User Operating Costs - Reduce Flight Delays - Increase efficiency of terminal aircraft operations	●			●	
Airport Surface Detection Equipment/ Movement Area Safety System/Surface Traffic Automation	- Provide runway incursion indicators - Provide conflict alert for airport surface	- Increase runway departure capacity - Improved airport safety	●	●	●		
Flight Service/Weather Projects							
Aeronautical Data Link	Improve air-to-ground communications	- Reduce Controller/Pilot workload - Increased efficiency/safety - Increased capacity through error-free communications	●			●	●
Automated Weather Observing System	Improved/more timely weather information	- Improved safety - Increased terminal capacity - Manpower savings	●	●	●		
Integrated Terminal Weather System	Provide integrated timely weather products in terminal environment	- Decreased terminal delays - Improved safety	●	●	●		
Aviation Weather Products Generator	Provide integrated user weather graphics and forecast products in en route environment	- Decreased en route delays - Improved safety	●	●	●		
Ground-to-Air Projects							
Long Range Radar	Replace obsolete long range radars	- Lower maintenance/support costs - Improved safety			●		
Next Generation Weather Radar	Provide timely, accurate, and detailed ATC weather data	- Improved input to AAS - Increased safety - Increase fuel efficiency from improved weather data	●	●	●		
Terminal Doppler Weather Radar	Provide timely and accurate windshear data	- Increased safety - Decreased delays due to changing weather conditions	●	●	●		

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Project	Feature	Benefits	Major Administration Themes				
			Economy	Safety	Environment	Technology	Intermodalism
Ground-to-Air Projects (Continued)							
Global Navigation Satellite System	- Replace aging equipment (VOR/DME, NDB) with modern technology - Provide possible means to decommission multiple navigation systems	- Precise positioning and time measurement - Potential reduction aircraft enroute cost via provision of navigation and approach capabilities in one system	●			●	●
Precision Landing Systems	- Provide more precision approaches in US - Replace aging equipment - Potential means to clear-up ILS Frequency congestion	- Decreased Delays - Save fuel - Capacity increase/operating cost savings from curved approaches			●		●
Interfacility Communications Projects							
Radio Control Equipment	Replace obsolete radio control equipment (VFSS and keying control equipment)	- Reduce maintenance costs - Improve operational performance			●		
Routing and Circuit Restoral	Provide automatic restoration and re-routing communications capability	- Safety and Delay benefits from faster fault detection & restoral - Potential Leased Comm savings			●		
Maintenance and Operations Projects							
Remote Maintenance Monitoring System	Provide more timely fault monitoring and equipment status information	Decreased maintenance costs	●				
ARTCC Plant Modernization	- Modernize aged plant and structures - Improve energy systems - Eliminate environmental problems	- Energy conservation - Elimination of environmental hazards	●			●	●
Fuel Storage	Eliminate leaking tanks which pose environmental threat	- Environmental law compliance - Improve environment				●	
ATCT Safety Upgrades	Bring ATC tower facilities into compliance with OSHA safety standards	- Environmental hazard elimination - Improve workplace safety			●		
Aircraft Fleet Modernization	Provide aircraft equipment needed to meet flight inspection needs	- Upgrade avionics to new technology - Reduce noise pollution - Promote timely implementation of new navigation aids	●			●	●
Computer Resources Nucleus	Provide uniform, Agency-wide computing resource	- Provide timely, responsive, and economical ADP resource - Increase productivity of programs and personnel - Reduce procurement frequency ADP equipment	●				
Aviation Safety Analysis System	Provide single safety related information data structure	Improved access to more reliable and timely certification and safety information data			●		

Table 3-1 Benefits of F&E Investments and Contribution to Major Administration Themes

Other Administration Policy Objectives

Support for Defense Conversion: The FAA will procure facilities and equipment to convert closing military airfields and airspace to FAA control. Those airfields, which have a local sponsor and meet FAA Airway Planning Standard #1 establishment criteria, will be converted to civilian airports; adding needed landing capacity to many communities. In addition, the FAA will assume air traffic control responsibility for airspace currently controlled by military personnel. F&E funding will be used to equip and upgrade those base facilities so that they can be logistically supported by the FAA.

F&E-xx

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Transportation Services to Rural Areas: FAA investments in satellite technology will support increased services including service to rural areas. For example, the Global Navigation Satellite System (GNSS) will provide for lower operating minima on approaches to airports that currently have limited navigation guidance. GNSS-based approaches could provide access to the over 4000 U.S. runways which are long enough to accommodate transport aircraft, but do not have instrument landing facilities.

SECTION 4: CURRENT SYSTEM LIMITATIONS AND THE NATIONAL IMPACT OF PROGRAM DELAYS

This section provides an overview of the limitations of the current U.S. air traffic control system and the cost of delays in the F&E modernization program to the public and to the aviation industry.

Although many of the aged systems in the NAS are in the process of being replaced, continuing infrastructure investment is needed. For example, en route automation equipment is still primarily comprised of equipment dating back to 1950 and 1960 technology, such as the WECO-300 communication switching equipment, the controller's display, and computer display channel, which is the primary means to distribute data from the Host radar tracking processor to the radar controller displays.

Sustained support of older systems results in significantly higher costs for providing continued service. The older systems consist of obsolete units and the ability to continue supply support is impaired. Equipment such as the plan view display (PVD), which is used with the computer display channel (CDC) and the computer update equipment (CUE) at the en route centers, are twenty years old and have some obsolete piece parts. The PVD keyboard originally cost \$950 and today the replacement cost is \$4,497. Today's high unit cost is due to the re-engineering and development efforts required. There are 1,300 of these keyboards in the NAS today and they will be replaced by the advanced automation system/initial sector suite common console.

It is important to remember that FAA F&E projects help the airline industry by reducing their operating costs and increasing aviation safety. As airline activity increases over time, the capacity limitations of the current air traffic control system will exacerbate the problems that the airlines are currently facing. If system improvements are not made, delays will increase, causing airline operating costs to increase. Therefore, the FAA must continue the F&E modernization projects that will improve system capacity and ultimately save the user community time and money through reduced operating costs.

SECTION 5: SUMMARY

President Clinton stated in his report entitled "A Vision of Change for America", "We must invest more in our people, our plant and equipment, our infrastructure, and our research and development if we are to restore the American dream for our children." In his program to rebuild the nation's transportation system, the President specifically calls for additional investment for air traffic control modernization to meet projected increases in aircraft operations over the next ten years. The justification narratives which follow indicate those specific additional investments. The benefits of the FAA's air traffic control modernization program cited in the President's report include "reduced air travel delays, more efficient aircraft routing, fewer accidents, and more cost effective operation of the air traffic control system."

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

TOTAL NATIONAL AIRSPACE SYSTEM ACTIVITY

	<u>1982</u>	<u>1992</u>	<u>1996</u>	<u>2001</u>	<u>2005</u>	<u>Percent Growth 1982-2005</u>
NPIAS Airports (Existing)*	3,195	3,285	3,400	3,550	3,700	15.8
Airport Operations (millions)						
Aircraft Operations*	127.6	134.8	148.5	164.2	176.9	38.6
Itinerant Operations*	68.0	79.1	88.2	98.6	106.9	57.2
Instrument Operations	31.7	45.6	48.0	53.1	57.1	80.1
Towered Airport Operations	50.6	61.5	63.1	68.9	73.7	45.7
ARTCC Operations (millions)						
IFR Aircraft Handled	27.9	36.7	39.4	43.6	46.5	66.7
ACF Approach Control Operations**	---	---	---	---	---	---
FSS Service (millions)	62.4	39.7	35.6	34.7	34.0	(45.5)
Hours Flown (millions)						
Air Carrier	6.1	10.7	12.0	14.4	16.6	172.1
General Aviation	37.7	27.4	26.5	28.0	28.9	(23.3)
Military	6.2	6.2	4.8	4.6	4.7	(24.2)
Domestic Enplanements (Revenue Passengers) (millions)						
Air Carrier	272.8	429.2	477.9	571.6	645.9	136.8
Commuter	17.8	42.8	60.8	84.4	105.3	491.6
Aircraft Fleet (thousands)						
Air Carrier	2.5	4.2	4.5	5.3	6.1	144.0
Commuter***	1.4	2.0	2.4	2.7	2.9	107.1

* Aircraft operations forecasts are based on the existing airports included in the National Plan of Integrated Airport Systems (NPIAS).

** Approach control operations conducted for area control facilities equal the number of instrument operations conducted by towers.

*** Civil helicopter and commuter fleets are included in the total general aviation fleet. Military helicopter fleet included in total military fleet.

Sources: Aviation System Capital Investment Plan (February 1994) and the "FAA Aviation Forecasts, Fiscal Years 1994-2005" (FAA-APO 94-1, March 1994)

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

	<u>1982</u>	<u>1992</u>	<u>1996</u>	<u>2001</u>	<u>2005</u>	<u>Percent Growth 1982-2005</u>
Total General Aviation	213.3	198.5	175.7	174.8	177.4	(16.8)
Civil Helicopter***	7.0	6.3	6.0	6.9	7.6	8.6
Total Military	21.7	19.2	14.9	14.4	14.4	(33.6)
Military Helicopter***	9.7	7.3	5.7	5.5	5.5	(43.3)
Pilots (thousands)						
Instrument Rated	252.5	303.2	317.3	339.5	356.1	41.0
Total Pilots	764.2	692.1	702.6	743.3	769.8	0.7

*** Civil helicopter and commuter fleets are included in the total general aviation fleet. Military helicopter fleet included in total military fleet.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Fiscal Year 1995
Summary by Activity

<u>Activity</u>	<u>FY 1994</u> <u>Actual</u>	<u>FY 1995</u> <u>Request</u>	Difference Increase (+) Decrease (-)
1. <u>Engineering, Development, Test and Evaluation</u>			
a. En Route Programs.....	\$353,901,000	\$497,000,000	\$+143,099,000
b. Terminal Programs	11,650,000	3,000,000	- 8,650,000
c. Flight Services Programs	0	0	0
d. Landing and Navigational Aid Programs.....	41,218,000	23,300,000	- 17,918,000
e. Research, Test, and Evaluation Equipment Facilities	27,700,000	24,590,000	- 3,110,000
Total, Activity 1	434,469,000	547,890,000	+113,421,000
2. <u>Air Traffic Control Facilities and Equipment</u>			
a. En Route Programs.....	470,555,000	546,215,000	+75,660,000
b. Terminal Programs	360,857,000	319,108,000	-41,749,000
c. Flight Service Programs	48,226,000	75,389,000	+27,163,000
d. Land and Navigational Aid Programs	93,159,000	50,288,000	-42,871,000
e. Other ATC Facility Programs	66,919,000	114,758,000	+47,839,000
Total, Activity 2	1,039,716,000	1,105,758,000	+66,042,000
3. <u>Non-Air Traffic Control Facilities and Equipment</u>			
a. Support Equipment.....	136,645,000	102,135,000	-34,510,000
b. Training Equipment and Facilities	41,100,000	24,400,000	- 16,700,000
Total, Activity 3	177,745,000	126,535,000	- 51,210,000
4. <u>Mission Support</u>			
a. System Support and Services, Total, Activity 4	268,174,000	273,517,000	+ 5,343,000
5. <u>Personnel and Related Expenses</u>			
a. Personnel and Related Expenses, Total, Activity 5	198,000,000	215,400,000	+17,400,000
Undistributed	2,000,000	0	0
Budget Authority Totals/Net Differences	\$2,120,104,000	\$2,269,100,000	+\$148,996,000

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

General Statement

This fiscal year 1995 program continues the agency's efforts to modernize and improve air traffic control systems and airway facilities services. The requested budget authority totals \$2,269,100,000. Detailed justifications, on a project by project basis, begin on page 1.

Significant investments for major programs by budget activity are: (dollars in millions)

1. Advanced Automation System (AAS) (\$473.5M), and Microwave Landing System (MLS) (\$23.3M)
2. Advanced Automation System (AAS), (\$36.4M), Voice Switching and Control System (VSCS) (\$231.2M), ARTCC Building Improvements/Support, (\$59.1M), Employee Safety for Airport Traffic Control Towers (ATCT) (\$31.3M), Aircraft Fleet Modernization (\$50.0M), and Terminal ATC Facilities Improvement (\$54.5M).
3. Automated Data Processing (ADP) Facilities Management (\$20.6M), Hazardous Materials Management (\$15.0M), and Aviation Safety Analysis System (ASAS) (\$15.4M).
4. System Engineering and Development Support (\$95.2M), Transition Engineering and Support (\$52.0M), and Technical Services Support Contract (\$62.0M).
5. Personnel and Related Expenses (\$215.4M)

The justification is presented in a format which includes a summary level appropriation history for each program dating back to 1982, the FY 1994 appropriation, the FY 1995 request, and a projection for post-1995 estimated project costs. The aggregate costs beyond 1995 are shown for planning purposes only and do not constitute the outyear budget estimates. Note that the summary level appropriation history for each program is intended to reflect reprogrammed funds as approved by the Appropriations subcommittees. A statement of "Benefits" is included, along with a general breakdown of the budget year estimated costs by activity or task. At the upper right hand portion of each page of the justification there is a "CIP reference number" for example 21-12. In this example, the budget item requests funding associated with project number 12, chapter 2, section 1 of the Capital Investment Plan.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Activity 1, Engineering, Development, Test and Evaluation

a. En Route Programs

1A01	Aviation Weather Services Improvements.....	\$23,500,000	Various	F&E-1
1A02	Advanced Automation System (AAS) - E,D,T&E.....	\$473,500,000	Various	F&E-4

b. Terminal Programs

1B01	Airport Surveillance Radar (ASR)	\$3,000,000	Various	F&E-8
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c. Flight Service Programs

d. Landing and Navigational Aids Program

1D01	Microwave Landing System (MLS)	\$23,300,000	Various	F&E-10
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e. Research, Test, and Evaluation Equipment and Facilities

1E01	FAA Technical Center - Technical Building Lease	\$5,290,000	1	F&E-13
1E02	Utility Plant Modifications.....	\$1,200,000	1	F&E-14
1E03	NAS Improvement of System Support Laboratory.....	\$4,500,000	1	F&E-16
1E04	Technical Center Facilities	\$9,000,000	1	F&E-18
1E05	Technical Center Test Equipment.....	\$300,000	1	F&E-20
1E06	Precision Automated Tracking System (PATS).....	\$1,400,000	1	F&E-21
1E07	CAMI Infrastructure - Improvement.....	\$2,900,000	1	F&E-22

Total, Activity 1 \$547,890,000

2. Procurement and Modernization of Air Traffic Control Facilities and Equipment

a. En Route Programs

2A01	Long Range Radar (LRR) Program - Replace/Establish	\$21,100,000	Various	F&E-24
2A02	ARSR-3 Leap Frog Program.....	\$2,000,000	1	F&E-26
2A03	Radar Microwave Link (RML) System Replacement/Expansion	\$8,000,000	Various	F&E-27
2A04	Next Generation Weather Radar (NEXRAD) - Provide.....	\$62,000,000	Various	F&E-29
2A05	Air Traffic Control En Route Radar Facilities Improvements.....	\$8,898,000	Various	F&E-31
2A06	Advanced Automation System (AAS)	\$36,400,000	Various	F&E-33
2A07	En Route Software Development and Integration Support.....	\$10,300,000	Various	F&E-34
2A08	Weather and Radar Processor (WARP).....	\$4,700,000	Various	F&E-36
2A09	Aeronautical Data Link (ADL) Applications	\$15,000,000	Various	F&E-38
2A10	En Route Automation Equipment - Improve/Sustain.....	\$4,000,000	Various	F&E-40

F&E-xxvi

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

2A11	Oceanic Automation System	\$16,400,000	Various	F&E-42
2A12	ARTCC Building Improvements/Plant Improvements	\$59,128,000	Various	F&E-44
2A13	Voice Switching and Control System (VSCS)	\$231,200,000	Various	F&E-46
2A14	Remote Communication Facilities (RCF) Expand/Relocate	\$5,400,000	Various	F&E-48
2A15	Traffic Management System (TMS)	\$10,800,000	Various	F&E-50
2A16	Data Multiplexing Network (DMN)	\$5,500,000	Various	F&E-52
2A17	Critical Telecommunications Support	\$12,700,000	Various	F&E-54
2A18	En Route Communications and Control Facilities Improvement	\$7,189,000	Various	F&E-56
2A19	NADIN II - Enhancements	\$3,800,000	Various	F&E-58
2A20	Satellite Communications Circuit Back-up	\$1,500,000	13	F&E-59
2A21	DOD Base Closure - Facility Transfer	\$10,700,000	Various	F&E-61
2A22	Central Altitude Reservation Function (CARF)	\$1,500,000	Various	F&E-63
2A23	Display Channel Complex Rehost (DCCR)	\$2,000,000	Various	F&E-64
2A24	En Route Analysis and Reporting System (EARS)	\$2,000,000	Various	F&E-65
2A25	Performance Monitoring Analysis System	\$1,000,000	Various	F&E-67
2A26	Backup Emergency Communications (BUEC) - Interim	\$3,000,000	Various	F&E-69

b. Terminal Programs

2B01	Airport Surveillance Radar (ASR)	\$20,500,000	Various	F&E-71
2B02	Terminal Doppler Weather Radar (TDWR) - Provide	\$25,000,000	Various	F&E-72
2B03	Mode S - Provide	\$24,900,000	Various	F&E-73
2B04	Digital Bright Radar Indicator Tower Equipment (DBRITE)	\$2,700,000	Various	F&E-75
2B05	Terminal Software Development Support	\$4,000,000	Various	F&E-76
2B06	Chicago Terminal Radar Approach Control (TRACON) Relocation	\$2,400,000	1	F&E-77
2B07	ARTS IIIE Upgrades for Selected Air Traffic Facilities	\$10,000,000	Various	F&E-79
2B08	Remote Maintenance Monitoring System (RMMS) - Provide	\$10,000,000	Various	F&E-80
2B09	Terminal Air Traffic Control Facilities - Replace	\$54,500,000	24	F&E-82
2B10	Air Traffic Control Tower (ATCT)/ TRACON Facilities - Improve	\$16,433,000	Various	F&E-84
2B11	Emergency Transceivers - Replacement	\$3,000,000	Various	F&E-86
2B12	Terminal Voice Switch Replacement (TVSR)/Enhanced Terminal Voice Switch (ETVS)	\$15,500,000	31	F&E-87
2B13	Radio Control Equipment (RCE) - Provide	\$9,600,000	Various	F&E-89
2B14	Runway Status Light System	\$4,000,000	1	F&E-91
2B15	Airport Surface Detection Equipment (ASDE) - Additional Establishment	\$7,000,000	Various	F&E-93
2B16	ARTS IIA Mode C Intruder Capability and Video Compression	\$9,400,000	Various	F&E-94
2B17	Terminal Air Traffic Control Automation (TATCA)	\$13,000,000	Various	F&E-96
2B18	Terminal Radar (ASR) - Improve	\$3,898,000	Various	F&E-98
2B19	Dallas/Fort Worth Metroplex Program	\$5,500,000	1	F&E-99

F&E-xxvii

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

2B20	Potomac Project Metroplex	\$2,800,000	1	F&E-100
2B21	Northern California Metroplex	\$1,500,000	1	F&E-101
2B22	Atlanta Metroplex	\$1,500,000	1	F&E-103
2B23	Employee Safety for Airport Traffic Control Towers (ATCT)/OSHA Environmental Compliance Standards	\$31,300,000	Various	F&E-105
2B24	Terminal Communications - Improvement	\$2,677,000	Various	F&E-107
2B25	Precision Runway Monitors	\$1,000,000	Various	F&E-109
2B26	Southern California Metroplex Control Facility (MCF)	\$17,000,000	Various	F&E-110
2B27	New Austin Airport at Bergstrom	\$20,000,000	Various	F&E-111

c. Flight Service Programs

2C01	Flight Service Station (FSS) - Modernization	\$8,000,000	Various	F&E-113
2C02	Automated Surface Observing System (ASOS)	\$37,200,000	77	F&E-115
2C03	Wide Area Augmentation System (WAAS) for GPS	\$25,900,000	Various	F&E-117
2C04	FSAS Operational and Supportability Implementation System (OASIS)	\$2,000,000	4	F&E-119
2C05	Flight Service Facilities Improvements	\$2,289,000	Various	F&E-121

d. Landing and Navigational Aids Program

2D01	Very High Frequency Omnidirectional Radio Range (VOR) With Distance Measuring Equipment (DME)	\$623,000	5	F&E-122
2D02	Approach Lighting System Improvement Program (ALSIP)	\$2,000,000	0	F&E-123
2D03	ILS - Replace Mark 1A, 1B, and 1C	\$6,000,000	Various	F&E-125
2D04	Instrument Landing System (ILS) - Establish	\$18,600,000	8	F&E-127
2D05	Visual NavAids - Establish/Expand	\$2,565,000	23	F&E-129
2D06	Runway Visual Range (RVR) - Establish	\$2,500,000	Various	F&E-131
2D07	ILS - Replace Wilcox CAT II/III	\$11,600,000	9	F&E-133
2D08	Instrument Approach Procedures Automation (IAPA)	\$1,000,000	Various	F&E-134
2D09	Gulf of Mexico Offshore Program	\$5,400,000	Various	F&E-136

e. Other ATC Facilities Programs

2E01	Alaskan NAS Interfacility Communications Systems (ANICS)	\$5,000,000	Various	F&E-137
2E02	Fuel Storage Tank Replacement and Monitoring	\$10,500,000	Various	F&E-139
2E03	FAA Buildings and Equipment	\$11,645,000	Various	F&E-140
2E04	Electrical Power Systems - Sustain/ Support	\$7,000,000	Various	F&E-141
2E05	Air Navigational Aids and ATC Facilities (Local Projects)	\$6,000,000	Various	F&E-143
2E06	Air Navigation Facility/ATC System Support - Provide	\$9,000,000	Various	F&E-144
2E07	Land/Easement Purchase for Existing Airway Facilities	\$1,500,000	Various	F&E-145
2E08	Aircraft Related Equipment Program	\$6,000,000	Various	F&E-147

F&E-xxviii

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

2E09	Aircraft Fleet Modernization.....	\$50,000,000	2	F&E-149
2E10	Air Traffic Controller Chairs - Replace.....	\$1,000,000	Various	F&E-151
2E11	Airport Cable Loop Systems - Sustained Support	\$6,113,000	Various	F&E-152
2E12	Computer Aided Engineering and Graphics (CAEG) Replacement	\$1,000,000	Various	F&E-154
Total, Activity 2.....		\$1,105,558,000		

3. Procurement and Modernization of Non-Air Traffic Control Facilities and Equipment

a. Support Equipment

3A01	Automated Data Processing (ADP) Facilities Management (CORN).....	\$20,600,000	12	F&E-155
3A02	NAS Management Automation Program (NASMAP).....	\$4,500,000	Various	F&E-157
3A03	Hazardous Materials Management	\$15,000,000	Various	F&E-159
3A04	Aviation Safety Analysis System (ASAS).....	\$15,392,000	Various	F&E-161
3A05	Operational Data Management System (ODMS)	\$5,000,000	Various	F&E-162
3A06	Child Care Facilities	\$4,400,000	Various	F&E-164
3A07	FAA Employee Housing	\$8,000,000	Various	F&E-166
3A08	Logistics Support Systems and Facilities (LSSF).....	\$5,000,000	1	F&E-168
3A09	Test Equipment - Maintenance Support for Replacement	\$4,000,000	Various	F&E-170
3A10	Radio Frequency Interference (RFI) Vans	\$2,300,000	Various	F&E-171
3A11	Integrated Flight Quality Assurance.....	\$2,500,000	Various	F&E-172
3A12	Safety Performance Analysis System (SPAS)	\$7,400,000	Various	F&E-174
3A13	Performance Enhancement Systems (PENS)	\$2,543,000	Various	F&E-176
3A14	Aviation Safety Advanced Analysis Program (ASAAP).....	\$4,000,000	1	F&E-178
3A15	Airport Datum Monument Program	\$1,500,000	Various	F&E-180

b. Training, Equipment and Facilities

3B01	Computer Based Instruction (CBI) - Expand/Improve.....	\$4,500,000	Various	F&E-182
3B02	Aeronautical Center Training and Support Facilities.....	\$13,900,000	1	F&E-184
3B03	National Airspace System (NAS) Training Facilities.....	\$6,000,000	Various	F&E-186
Total, Activity 3.....		\$126,535,000		

4. Facilities and Equipment Mission Support

a. System Support and Services

4A01	System Engineering and Development Support	\$95,200,000	Various	F&E-188
4A02	Logistics Support Services (LSS)	\$8,000,000	Various	F&E-190
4A03	Mike Monroney Aeronautical Center - Lease	\$14,800,000	1	F&E-191
4A04	In-Plant NAS Contract Support Services.....	\$5,700,000	Various	F&E-192

F&E-xxix

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

4A05	Transition Engineering Support.....	\$52,000,000	Various	F&E-194
4A06	National Airspace Integrated Logistics Support (NAIS).....	\$5,000,000	Various	F&E-196
4A07	Frequency and Spectrum Engineering	\$1,600,000	Various	F&E-197
4A08	Acquisition Oversight.....	\$2,000,000	Various	F&E-199
4A09	FAA System Architecture.....	\$3,000,000	Various	F&E-200
4A10	Technical Support Services Contract (TSSC).....	\$62,000,000	Various	F&E-202
4A11	Program Support Services.....	\$5,000,000	Various	F&E-203
4A12	Program Support Leases.....	\$19,217,000	Various	F&E-204
Total, Activity 4		\$273,517,000		
5A01	Personnel and Related Expenses	\$215,400,000	Various	F&E-205
Total, All Activities		\$2,269,100,000		

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

**Appropriation Summary
Federal Aviation Administration
Facilities and Equipment
(\$000)**

		<u>FY 1995 Non-Discretionary Changes</u>				<u>FY 1995 Discretionary Changes</u>			
		<u>Increases</u>		<u>Reductions</u>		<u>Increases</u>		<u>Reductions</u>	
FY 1993 Enacted	(1)	FY 1994 President's Budget	(2)	Reductions	(3)	Annual- izations	(4)	Price Level & Other Non-Diser. Increases	(5)
						Anticipated Management Savings	(6)	Recommended Program Reductions	(7)
								Recommended Program Increases	(8)
									FY 1995 Request Level
									(9)
DOLLAR RESOURCES									
Budget Authority:	2,301,700	2,120,104						148,996	2,269,100
Program Level:	2,490,743	2,780,000						-290,000	2,490,000
Outlays:	2,166,371	2,023,151						79,911	2,103,062
STAFFING									
FTP Positions:	2,504	2,504						0	2,504
FTE - Total	2,170	2,300						0	2,300
(Subject to Ceiling)									

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

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**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Request:	Location:	CIP Item:
1A01	Aviation Weather Services Improvements	\$23,500,000	0	63-21, 63-22

Basis for Request: The Aviation Weather Development Program will improve the capacity, safety, and efficiency of the NAS by providing improved weather information. The aviation weather system combines additional weather observations, improved forecast technology, and more efficient distribution of information to air traffic controllers and automated systems. This program will build upon the capital investment of present and planned NAS weather programs, and the planned modernization of the National Weather Service (NWS).

Description of Problem: In the terminal area, air traffic controllers in tower cabs and terminal radar approach control facilities rely on a number of terminal area sensors which collectively provide large amounts of weather data. The interpretation of this data is performed manually, is labor intensive, and data from the various sensors may be confusing. The main shortcoming of the present system is that it cannot anticipate short-term weather changes that affect safety, capacity, and efficiency in the terminal area, such as ceiling, visibility, wind shear, microbursts, and thunderstorms, nor the impact of these changes on terminal operations.

In support of en route aviation operations, accurate weather forecasts are not available on a time scale comparable to that of most U.S. flights - 30 minutes to several hours. The NWS forecasts are based on 12-hourly observations spaced 200 miles apart across the United States, which is insufficient for the aviation community. With this observational constraint, the high resolution forecasts, in space and time, needed by air traffic controllers, are not possible. Continued manual analysis such as that performed by NWS meteorologists to identify specific aviation weather impacts (e.g., icing, turbulence), cannot provide the product timeliness and resolution required to significantly reduce related delays. On a national scale, the poor forecast resolution and slow update frequency result in weather advisories that are ineffective due to broad over-warning. Also, the present system does not provide graphical depiction of aviation weather impacts to promote rapid assimilation by air traffic controllers.

Description of Solution: For the terminal area, the solution is to develop a system which will integrate all the terminal weather sensor data, and to provide near-term (0-30 minutes) automated weather information and predictions in easily understood graphical form, requiring no further interpretation, to air traffic controllers. This Integrated Terminal Weather System (ITWS) will collect all of the weather data available in the airport terminal area, from both ground-based and airborne sensors. The ITWS is focused on providing safety and planning products to air traffic controllers. These products include windshear and microburst warnings, storm cell and lightning information, terminal area winds aloft, runway winds, short-term ceiling and visibility predictions, and snowfall rate predictions to assist in ground de-icing decisions.

\$10,700,000 is required in FY 1995 for the ITWS for continued development of advanced terminal weather algorithms, completion of the ITWS demonstration and validation phase, preparation for full scale development phase, completion of the specifications and request for proposal for initial ITWS capability, and for full scale development.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

For the en route area, the solution is to integrate all NWS and FAA weather sensor data and generate specific weather observation, warning, and forecast products for air traffic controllers in national, en route, and flight service domains without further meteorological interpretation. The Aviation Weather Products Generator (AWPG) will meet this requirement. The AWPG is divided into two components: 1) an analysis and forecast component, and 2) a product generation component. The first component is the Aviation Gridded Forecast System (AGFS), being developed under an inter-agency agreement with the National Oceanic and Atmospheric Administration (NOAA). This will provide the numerical and statistical techniques to automatically generate a high-resolution analysis and forecast of aviation impact variables (AIVs), namely, winds, temperature, icing, turbulence, cloud base height, visibility, hail, and convective precipitation. The second component, AWPG product generation software, will convert the AGFS into high-resolution, accurate, and timely automated graphical products. The AWPG development is a software enhancement to current and planned NAS subsystems and NWS forecasting systems. \$12,800,000 is required in FY 1995 for the AWPG to demonstrate and validate the NOAA-generated AGFS, including gridded significant meteorological information (SIGMETs) and area forecasts; to generate graphic aviation weather warning and forecast products from the three-dimensional grids of data (e.g., icing, turbulence, and upper winds), and to distribute initial products for demonstration and evaluation through technology transfer to private industry via existing Cooperative Research and Development Agreements.

Benefits The ITWS and AWPG will enable air traffic controllers (including traffic managers and supervisors) in terminal, en route, and flight service positions to isolate, in space and time, weather hazards, reducing uncertainty about weather-impacted areas. By contributing to an increase in the capacity and efficiency of the air traffic control system, this program will strengthen transportation's role in supporting the economy. These enhancements will help to decrease system delays which will save aviation fuel, thereby strengthening the linkage between transportation and environmental policy. The major benefits from the development and deployment of the ITWS and AWPG will be (1) improved airport and en route capacity by providing real time, accurate, high resolution descriptions and forecasts of weather impacting the terminal area and the en route environment; (2) more efficient flight planning and user preferred routing through improved analysis and forecast of upper winds; and (3) increased flight safety through improved aviation weather hazard forecasting. (e.g., icing, turbulence, severe storms, microbursts, and high winds).

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	3	\$ 40,600.0
FY 1994 Appropriated	---	19,351.0
FY 1995 Request	---	23,500.0
Future Requirement	<u>70</u>	<u>197,884.0</u>
Total	73	\$281,335.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. ITWS Rapid Prototype Systems	---	\$10,700.0
2. AWPG Rapid Prototype System	---	<u>12,800.0</u>
Total	---	\$23,500.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Request:	Locations:	CIP Item(s):
1A02	Advanced Automation System (AAS)	\$473,500,000	Various	21-12
2A06	- E,D,T&E	36,400,000		

Basis for Request: The current air traffic control (ATC) system must be expanded and improved to increase capacity and improve ATC productivity. The advanced automation system (AAS) will provide a new automation system that includes controller workstations, computer software, and processors necessary to handle projected workloads beyond the year 2000. In order for the new automation system to be installed, the air route traffic control centers (ARTCCs) require modifications and improvements. Implementation of AAS is currently underway.

The peripheral adapter module replacement item (PAMRI) was the first en route segment of the program and it is completed. It replaced the aging hardware in 20 ARTCC's that interfaced with radars and communicated radar data to central computers. PAMRI deliveries have been made to all 20 sites and was operational at all sites by April 1993, three months ahead of schedule.

The initial sector suite system (ISSS), the second en route step, will replace existing 1960's vintage en route display equipment and paper flight strips with new workstations (common consoles) and electronic flight strips. ISSS will greatly improve reliability and flexibility and will be a basis for future en route automation enhancements.

The remaining AAS segments have been restructured to provide early benefits to the users with infrastructure changes occurring only when needed to support the benefits. The new ATC automation strategy calls for three plans: en route, terminal, and tower. The en route plan begins with ISSS installation and proceeds with periodic upgrades which will include area computer control complex (ACCC), automated en route air traffic control (AERA), the en route portion of terminal ATC automation (TATCA), data link, and NEXRAD weather data provided via WARP (TATCA, data link, and WARP are funded separately).

The Terminal plan addresses ATC automation needs for the FAA's metroplex control facilities (MCF's) and the Department of Defense TRACONs and begins with a scaled down terminal advanced automation system (TAAS-1) to a single FAA location that is also suitable for the military to conduct their operational test and evaluation (OT&E). The baseline TAAS (named TAAS 2) would be installed at all MCF's. The other FAA TRACONs existing today would remain in their present location and would be upgraded by a separate program. Data link and TATCA capabilities (TAAS 3) will be added to the TAAS baseline at each MCF (TATCA, Data link, DOD systems, and production MCF systems are funded separately).

The Tower plan calls for beginning with the installation of a basic tower control computer complex (TCCC) which would integrate several entry and display devices currently in the cab into a single system. These air traffic control towers (ATCTs) would then be upgraded to provide electronic display and manipulation of flight data.

Description of Problem: Due to age and design characteristics, present en route and terminal automation

F&E-4

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

systems are limited in capacity and capability and have escalating maintenance costs. These systems must be replaced with a new system that will support both present and future functions in a common system design that will meet the longer term requirements for availability, expandability, and efficiency.

The AAS cannot be installed in the ARTCCs as they exist today. Space in the control wing basement of the ARTCCs must be refurbished and additional power generators must be procured and installed. ARTCCs were expanded during the early 1980's in conjunction with Host computer programs, however the control room space was left unfinished at that time and must now be finished. Additional or new space must be constructed.

Description of Solution: Provide \$509,900,000 for the AAS acquisition contract, technical support, training, field support, and ARTCC modernization efforts in FY 1995. \$473,500,000 is requested in budget item 1A02 to continue full scale development of all segments of the AAS program, and \$36,400,000 is requested in budget item 2A06 to prepare the ARTCC's for installation of AAS equipment and to fund ISSS and common console full production for ISSS.

During FY 1994, a contract modification was completed to rebaseline the ISSS segment of the program and freeze requirements. All software functionality required to conduct OT&E at the FAA Technical Center was developed, completed, and delivered to FAATC. There, integration began with the current level of operational ARTCC software on the system support computer complex (SSCC) that is used as the ISSS test bed at FAATC. All of the SSCC hardware to be used for ISSS testing was delivered, installed, and checked out during FY 1994. Formal acceptance tests were completed at FAATC on the ISSS system and OT&E began.

The contract was modified to rebaseline the TAAS requirements as they relate to MCF's and to support a phased deployment of TAAS. Software development continued at the factory.

TCCC requirements changes were negotiated into the AAS contract in FY 1993 to reflect the two stage (basic/enhanced) TCCC approach. TCCC was designed to be incremental in that the basic system is unchanged irrespective of the amount of air traffic to be handled. The requirements of increasing volumes of traffic will be met by incrementally adding to the hardware and software. Critical design review was conducted and limited development began on the basic TCCC during FY 1994, no work was accomplished on the enhancements.

AERA efforts resumed in FY 1994. Requirements for full AERA services were frozen and design and development began. Coding began on Early AERA functionality that is planned for implementation immediately following the ISSS time frame.

ARTCC site preparation activities continued in FY 1994. Funding provided for procurement of six uninterruptable power system modules and associated switchgear for each ARTCC required for ISSS implementation.

During FY 1995, the FAA Technical Center will complete formal ISSS operational test and evaluation. Limited consolidation of common consoles will be authorized and ISSS will be delivered to the first three sites: Seattle, Salt Lake City, and Denver ARTCC's. Full production of common consoles will also be authorized in FY 1995.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

On TAAS, coding will be completed and the software turned over to the integration test organization in FY 1995. System level test will be conducted followed by formal factory tests. Following successful completion of formal factory tests of TAAS-1, the system will be installed at the FAA Technical Center and early operational test and evaluation (OT&E) will begin. Development of the Common Interface Unit and AAS Distribution Unit will continue, along with operational evaluations of TAAS at the Development and Demonstration Facility (DDF). After completion of site preparation at the Southern California TRACON, TAAS-1 will be delivered and installed at the site.

Design and development of TCCC enhancements will begin in FY 1995. The basic TCCC will be delivered to the FAATC in FY 1995.

Architectural definition and development of the first of the planned en route upgrades will continue. The first upgrade will include the early AERA benefits plus incorporate some of the functions provided by the TATCA (CTAS with Descent Advisory). Work on the second en route upgrade will begin.

ARTCC site preparation activities will continue in FY 1995. Contracts will be awarded at one site for the third phase of the effort to refurbish ARTCC's and prepare them for AAS equipment installation (ISSS). Design and development will begin on the Honolulu ARTCC relocation.

Benefits: AAS is estimated to yield over \$23 billion in present value benefits over its life cycle via increased use of user preferred routes and altitudes, avoided delays, and increased controller productivity. These benefits will be realized through both increased capacity over the current automation system and new functionality. The new system will provide the capacity to handle civil and military air traffic growth beyond the year 2000. For example, AAS will support an increase in the number of aircraft tracked in the en route environment from 940 with the current Host computer to up to 6,000 aircraft. The increased capacity which AAS will provide will support economic growth. AAS functionality will enable the air traffic control system to provide increased granting of user preferred routes and altitudes, leading to time, fuel, other aircraft operating cost savings. The fuel saved will help reduce air pollution and conserve this vital national resource, thereby strengthening the linkage between transportation and environmental policy. In addition, the automated en route air traffic control functions that are delivered as part of this program will improve productivity of air traffic controllers, allowing them the ability to safely handle the growing air traffic. The new functionality of AAS will advance U.S. Transportation technology and expertise.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Activity 1</u>	<u>Activity 2</u>	<u>Total Amount (\$000)</u>
Appropriated (FY 1982-1993)	\$2,234,521.4	\$ 55,800.0	\$2,290,321.4
FY 1994 Appropriated	267,150.0	26,000.0	293,150.0
FY 1995 Request	473,500.0	36,400.0	509,900.0
Future Requirement	_____	_____	_____ ¹
Total			

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Engineering, Development, Test and Evaluation:		
Prime Contract	---	\$374,700.0
AERA	---	27,000.0
Technical Support	---	40,800.0
Field Support	---	29,000.0
Training	---	2,000.0
Subtotal	Various	\$473,500.0
2. Procurement and Modernization of ATC		
Facilities and Equipment:		
Prime Contract	---	\$28,800.0
ARTCC Modernization	---	7,600.0
Subtotal		\$36,400.0
Total	Various	\$509,900.0

¹ On December 13, 1993, the FAA administrator announced the advanced automation system program would undergo a thorough internal review to address cost and scheduling issues. An independent program review organization has also been retained to assess the AAS program. When this work is complete, a more accurate estimate of future program requirements will be available.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item:	Title:	Request:	Locations:	CIP Item(s):
1B01	Airport Surveillance Radar (ASR)	\$ 3,000,000	Various	34-13, 24-13
2B01		20,500,000		64-13

Basis for Request: To meet air traffic control requirements, the FAA provides airport surveillance radar services at qualified airports. The airport surveillance radar provides the means for determining the position of aircraft approaching, departing, or passing through airport terminal areas.

Description of Problem: After completion of the ASR-9 program, many terminal areas will have ASR-7/8 analog radars which must be replaced by a digital radar system. Also the hazardous weather detection capability of the ASR's must be enhanced to provide weather warnings (i.e., windshear/microbursts) at airports not planned to receive terminal doppler weather radar (TDWR). Additionally, ASR-9 projects partially funded in previous years need to be completed.

Description of Solution Budget Activity 1: provide \$2,000,000 to continue engineering and programmatic support for the acquisition of digital radar (ASR-11) for the replacement of analog terminal surveillance radar systems; provide \$1,000,000 to continue development of processing algorithms that enable an ASR to detect low-altitude windshear and microbursts in various regional climates.

Under Budget Activity 2: (a) provide \$19,500,000 to complete the ASR-9 installation of the fourth sensor at Dallas/Fort Worth, TX; the second sensor at Atlanta, GA; and the Scott Air Force Base, IL ASR-9; (b) provide \$1,000,000 for continued engineering and programmatic support.

Benefits: Terminal radar reduces delays and improves safety at congested airports. During instrument meteorological conditions, the radar provides controllers information that permits closer aircraft operations and greater traffic volume. Establishing new radars, as well as improving existing radars, ensures the continuation of maximum service capabilities during poor visibility, nighttime, and adverse local weather conditions. This program will increase the safety of our transportation system.

APPROPRIATION SUMMARY

	Activity 1	Activity 2	Total Amount (\$000)
Appropriated (FY 1982-1993)	\$8,000.0	\$768,046.3	\$776,046.3
FY 1994 Appropriated	1,000.0	44,300.0	45,300.0
FY 1995 Request	3,000.0	20,500.0	23,500.0
Future Requirement		¹ 2,700.0	2,700.0
Total	\$12,000.0	\$835,546.3	\$847,546.3

¹ Future year development requirements have not yet been defined.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Budget Activity 1:		
Terminal Surveillance Radar Digitizing	---	\$ 2,000.0
ASR Mod for Windshear Detection	---	1,000.0
Budget Activity 2:		
ASR Establishment	---	<u>\$20,500.0</u>
Total	Various	\$23,500.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
1D01	Microwave Landing System (MLS)	\$23,300,000	Various	24-07

Basis for Request: The United States and the International Civil Aviation Organization (ICAO) have adopted the microwave landing system (MLS) as the standard precision landing system to replace the current instrument landing system (ILS).

Description of Problem: The current precision landing system provided in the National Airspace System (NAS) is the ILS. The ILS has been a reliable system for more than 40 years, but it is not capable of meeting many current and future aviation needs. The MLS is the replacement for ILS that will meet evolving aviation user needs and address specific operational and technical issues. The ICAO identified 38 operational requirements for precision landing systems. While MLS is able to satisfy all 38 requirements, ILS can fully satisfy only 12 requirements and partially meet only 11 more.

It is widely acknowledged that MLS is technically superior to ILS. To show that it was economically advantageous, Congress directed the FAA to complete an evaluation/demonstration of MLS benefits before proceeding with one or more full production CAT II/III MLS contracts. A final report on the MLS Evaluation/Demonstration Program was submitted to Congress in April 1992. A precision approach decision concerning MLS CAT II/III will be made after the GPS CAT II/III feasibility study is completed in 1995.

Description of Solution: To realize the described benefits as quickly as possible, the FAA began contract procedures in 1990 for the development of a First Article CAT II/III MLS ground system. Incremental funding of \$23,300,000 is requested in FY 1995 to complete the design, development, and demonstration efforts of the MLS program. The amount of \$15,479,300 is needed for the continuation of the contracts for the dual source design, development, fabrication, test, and evaluation of the CAT II/III First Article Test Systems. The amount of \$553,400 is needed for the continuation of CAT I MLS spares and training efforts. The amount of \$7,267,300 is needed to provide hardware and software engineering support for continued certification of MLS avionics, continued development of MLS terminal instrument procedures (TERPS); and program office and ICAO support.

The requested funding is necessary to enable the U.S. to meet its international commitment and to realize the operational and economic benefits available from MLS.

MLS provides precision guidance to satisfy the full range of operational requirements, both civil and military, to all types of aircraft in all categories of landings. MLS, as compared to ILS, provides: more available channels for precision approaches; expanded operational flexibility; more accurate signal-in-space; and reduced susceptibility to a wide range of siting problems. These benefits will increase NAS capacity, eliminate existing problems with the current precision approach system, and improve safety. Delaying funding will delay MLS benefits until well beyond the year 2000 and would prevent the meeting of international commitments.

Benefits: Results from the MLS Evaluation/Demonstration Program indicated the following benefits can be

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

achieved by implementing MLS:

- o Relief from ILS frequency congestion and FM interference. Results from a Massachusetts Institute of Technology study confirm that ILS has reached the limits of its expansion capability in ten major metropolitan areas due to congestion and FM radio frequency interference on the ILS frequency band. In the ten major areas, less than 50 percent of the required new precision approaches for year 2000 could be satisfied by ILS. The MLS will satisfy all of the requirements, as its frequency band offers more channels than ILS and is not located adjacent to the FM band.
- o Delay reduction. Simulations of the New York, Chicago, and San Francisco terminal areas conducted at NASA/Ames indicate that a significant reduction in airline delay can be achieved in areas with multiple airports, through the use of advanced terminal procedures made possible by MLS (e.g. curved approaches). Airline savings are expected to be \$200-\$300 million per year.
- o Additional runways instrumented for precision approach. The ILS cannot be sited at some runways due to terrain considerations, frequency congestion problems, or other limitations. A detailed technical analysis by air traffic control experts shows the capability of MLS to solve many of these siting problems. As a result, CAT I MLS's have been installed at 2 sites not possible for ILS: runways at Chicago (Midway) and New York (JFK); and are scheduled for installation at 26 additional sites which include Andrews Air Force Base; Seattle (SEATAC) and Pullman-Moscow, WA; Anchorage, Unalaska (Dutch Harbor), Dillingham, and Unalakleet, Alaska; and Steamboat Springs, CO.

This program will increase capacity and safety, and decrease delays and diverted and canceled flights. The increased capacity will strengthen transportation's role in supporting economic growth. The linkage between transportation and environmental policy will be strengthened by contributing to aviation fuel savings via decreased delays. Intermodalism will be fostered by reducing the number of canceled or diverted flights which ensures that passengers and cargo arrive as scheduled to link-up with other modes of transportation.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$294,200.0
FY 1994 Appropriated	---	41,218.0
FY 1995 Request	---	23,300.0
Future Requirement	---	<u>382,000.0</u> ¹
Total	Various	\$740,718.0

¹ Future funding for the Precision Landing Systems programs are under review and may be revised

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Procure for Testing Cat II/III Microwave Landing Systems	Various	\$23,300.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item#:</u>
1E01	FAA Technical Center - Technical Building Lease	\$5,290,000	1	56-19

Basis for Request: The objective of the FAA Technical Center Improvement Program is to modernize and consolidate facilities and buildings, to reduce costs, and to increase operating efficiency. The improvement program will provide modern facilities to conduct expanded test and evaluation functions assigned to the Technical Center which are needed to accomplish the Capital Investment Plan.

Description of Problem: In a formal agreement between the Federal Aviation Administration and the Atlantic County Improvement Authority, a 20-year lease/purchase agreement was entered into for building the Center's new Technical Building. The building was completed in 1980, and the annual cost of the lease is \$5,290,000.

Description of Solution Provide \$5,290,000 for the Technical Building lease for FY 1995.

Benefits The Technical Building replaced 36 obsolete and widely dispersed World War II vintage temporary buildings. The new Technical Building provides improved efficiency, lower operating costs, and expanded facilities to meet future research requirements. This program contributes to achieving all five administration themes.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$66,372 0
FY 1994 Appropriated	---	5,290 0
FY 1995 Request	---	5,290 0
Future Requirements	---	1
Total	1 2	\$76,952 0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Lease Payment	1	\$5,290 0

¹ Lease agreement provides for 20 year lease 1982-2001.

² All work/services to be performed at Federal Aviation Administration Technical Center (ACT)

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Request:	Location:	CIP Item:
1E02	Utility Plant Modifications	\$1,200,000	1	56-19

Basis for Request: The FAA owns and operates the Test and Evaluation facilities, Research and Development (R&D) facilities, administrative and storage facilities, as well as numerous project test sites. To support these facilities and test sites, the Center must keep in operating order the Central Utilities Plant, electrical and water distribution systems, and the building infrastructure.

Description of Problem: The Central Utility Plant's (CUP) condenser system is in poor condition and a major environmental hazard problem; one of the CUP's refrigeration machines is beyond repair. The electrical main substation needs to be upgraded and expanded.

Description of Solution: Provide \$1,200,000 to provide a design to upgrade the condenser system, replace one 1,000 ton chiller, and upgrade the main substation.

Benefits: The modifications will ensure the controlled reliable operation of the Technical Center by replacing aged mechanical and electrical equipment before serious problems occur. This program contributes to achieving all five administration themes.

APPROPRIATION SUMMARY

	Locations	Amount (\$000)
Appropriated (FY 1982-1993)	---	\$ 8,450.0
FY 1994 Appropriated	---	1,660.0
FY 1995 Request	---	1,200.0
Future Requirement	---	---
Total	1 ²	\$11,310.0

¹ Continuing requirement to be validated on a year-to-year basis.

² All work/services to be performed at Federal Aviation Administration Technical Center (ACT).

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Condenser System Upgrade	---	\$700.0
2. Chiller Replacement	---	400.0
3. Upgrade Main Electrical Substation	---	<u>100.0</u>
Total	Various	\$1,200.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
1E03	NAS Improvement of System Support Laboratory	\$4,500,000	1	56-17

Basis for Request: To establish laboratory environments required to support the testing, integration, and implementation activities associated with the Capital Investment Plan (CIP) deliverables scheduled for the FAA Technical Center.

Description of Problem: The CIP identifies delivery of various computer systems and common console displays as part of the NAS Modernization Program. Accommodations for these systems require extensive modification to existing laboratory environment space, fiber optic cabling, as well as expansion of the current System Support Laboratory.

Description of Solution: To accommodate new systems and equipment, the Technical Center must redesign and reconstruct the laboratory environment. The Technical Center Transition Plan identifies in detail the multitude of site preparation activities currently planned for the year 1995. The new systems expected to be implemented, integrated, and interfaced into the Systems Support Laboratory beginning in the 1995 time frame include:

Common Consoles, 49 additional
Terminal Doppler Weather Radar (TDWR)
Weather Message Switching Center Replacement (WMSCR)

Accommodations for these systems require extensive modification to existing laboratory environment space. The accomplishment of the NAS Laboratory modernization will ensure that CIP systems and equipment can be successfully implemented, tested, and integrated into the NAS.

Benefits: The establishment of the latest state-of-the-art laboratory environment to support the implementation, testing, and integration of new NAS systems prior to their delivery to the various FAA field sites. This program contributes to achieving all five administration themes.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$18,053.1
FY 1994 Appropriated	---	3,000.0
FY 1995 Request	1	4,500.0
Future Requirements	---	
Total	1	\$25,553.1

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Integration/Implementation of NAS Laboratory	---	\$4,500.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Amount:	Locations:	CIP Item(s):
1E04	Technical Center Facilities	\$9,000,000	1	56-17

Basis for Request: To provide for hardware and software maintenance and operations costs; software licensing fees; and other costs associated with operating the Technical Center's multi-user facilities which are engaged in the support of F&E projects.

Description of Problem: The Technical Center operates a large laboratory complex where development and operational test and evaluation (OT&E) activities are conducted supporting Capital Investment Plan (CIP) programs. These laboratories provide around the clock support of operations for all en route and terminal air traffic control (ATC) facilities throughout the nation. Within this complex resides the air traffic control simulation facilities where dynamic simulations are conducted in support of CIP programs. The Human Factors Laboratory studies the validity, operational effectiveness, and impact of advanced technologies on the air traffic controller and maintenance technician. These facilities are maintained and supported in order to meet mandated objectives associated with the CIP and the day-to-day operation of the ATC system.

Without funding, the Technical Center will be unable to support the development and implementation of various elements of the CIP. These facilities are instrumental in the implementation of the majority of the CIP projects with special emphasis on the advanced automation system (AAS) which requires extensive OT&E. The Technical Center has been tasked with the OT&E of all segments of the AAS including the initial sector suites systems (ISSS) and its supporting equipment such as the peripheral adapter module replacement item (PAMRI) and the voice switching and control system (VSCS). These facilities also support hardware and software development programs and ATC simulation scenario development which are essential elements in the ISSS implementation process and human factors research.

Description of Solution: Provide the level of support required to ensure that the laboratory complex is adequately maintained.

Benefits: This support is necessary to the successful development and implementation of various elements of the CIP. In addition, the ATC field facilities support mission will continue throughout the transition from today's system to the full implementation of AAS. This program contributes to achieving all five administration themes.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 16,700.0
FY 1994 Appropriated	---	7,000.0
FY 1995 Request	1	9,000.0
Future Requirement	---	
Total	<u>1</u>	<u>\$32,700.0</u>

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Laboratory Operations and Maintenance	1	\$9,000.0

¹ The project is ongoing, funding requirements determined annually.

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Location:</u>	<u>CIP Item(s):</u>
1E05	Technical Center Test Equipment	\$300,000	1	56-18

Basis for Request: To provide funding for new equipment to support the test equipment program at the FAA Technical Center.

Description of Problem: To provide funds to assure the availability of test equipment as current as the electronic systems being tested or developed at the Technical Center. This includes all technical programs, facilities and the test equipment facility.

Description of Solution: Provide \$300,000 for the purchase of new test equipment.

Benefits: This will eliminate costly and extensive delays in Technical Center programs when funding is not available for required test equipment, provide for a loaner pool of high demand equipment, or to replace failed units temporarily, and maintain a state-of-the-art facility to accomplish in-house repair/calibration and quality control of contractor services.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$481.0
FY 1994 Appropriated	---	0.0
FY 1995 Request	---	300.0
Future Requirement	---	1
Total	1	\$781.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Test Equipment	1	\$300.0

¹ This project will have continuing requirements and will be validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item#:</u>
1E06	Precision Automated Tracking System (PATS)	\$1,400,000	1	56-16

Basis for Request: Procurement of a "bare-bones" PATS is underway with FY 1994 funding. Additional FY 1995 funding is required to execute priced options in the initial procurement so that the various enhancements necessary for a complete system can be funded.

Description of Problem: Funding of \$2,100,000 for FY 1994 will allow procurement of a "bare-bones" PATS but will not allow for the execution of priced options for enhancements such as ground to air telemetry, on-site data plotting and display, remote designate capability from an acquisition device or other tracking system, additional real-time data processing capabilities, and a support vehicle for off-base operations.

Description of Solution: Provide \$1,400,000 to allow for the execution of priced options in the FY 1994 PATS procurement. This will allow for the complete system necessary to support the implementation of advanced technology systems which would improve the efficiency of the NAS.

Benefits: The capability to fully enable the FAA to test and verify the accuracy and reliability of the next generation of aviation navigation and landing systems, including global positioning system (GPS), microwave landing system (MLS), and traffic collision avoidance system (TCAS). The resulting improvement in efficiency of the NAS will strengthen transportation's role in supporting economic growth.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	2,100.0
FY 1995 Request	---	1,400.0
Future Requirement	---	0.0
Total	1	\$3,500.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
PATS procurement	1	\$1,400.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
1E07	CAMI Infrastructure - Improvement	\$2,900,000	1	56-30

Basis for Request: Current infrastructure components of the Civil Aeromedical Institute (CAMI) have become dangerous, obsolete, or unusable jeopardizing CAMI's ability to meet its mission.

Description of Problem: Because of old, dangerous, or unusable equipment CAMI is unable to meet its mission of performing testing and development work to evaluate human function and life protective equipment in the civil aviation environment. Three facilities within CAMI, the hypobaric chamber, the aircraft cabin evacuation facility (ACEF), and the highbay crashworthiness facility, are in need of renovation or replacement in order to restore the testing capabilities needed to support programs within Aviation Medicine, Aircraft Certification, Flight Standards, Rulemaking, and the Office of Accident Investigation.

For FY 1995, the ACEF will be renovated to allow for the study of evacuation issues related to wide body, dual aisle passenger aircraft. This facility will be needed when the FAA faces critical certification issues for new passenger aircraft currently under design and entering service during the latter half of this decade. Also in FY 1995, improvements will be made to the highbay crashworthiness area of CAMI. These improvements are necessary to address critical safety and industrial hygiene problems, and to allow CAMI to meet the crashworthiness testing and analysis requirements associated with amendments made to the Federal Aviation Regulations made in 1988.

Description of Solution: Provide second year funding of \$2,900,000 for the modernization of the CAMI infrastructure. These funds will be used to provide needed capability to the ACEF and to correct safety problems in the highbay crashworthiness area.

Benefits: Installation of needed equipment in the ACEF will provide the FAA with a needed testing capability to address certification issues associated with new, wide body aircraft currently being designed. Improvements to the highbay will correct safety and industrial hygiene deficiencies in the current facilities. Both projects provide capabilities needed to support programs in the Aircraft Certification Service and the Flight Standards Service.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	1,400.0
FY 1995 Request	1	2,900.0
Future Requirements	---	600.0
Total	1	\$4,900.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Renovate ACEF and highbay crashworthiness facility	1	\$2,900.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CFP Item:</u>
2A01	Long Range Radar (LRR) Program - Replace/Establish	\$21,100,000	Various	24-15

Basis for Request: The en route air traffic control system relies on long range radar (LRR) systems for aircraft movement data to ensure safe operations and proper aircraft separation. The long range radars also provide for the defense of U.S. borders and assist in drug interdiction efforts. The LRR replacement program is a multiyear program funded 50/50 by the FAA and the Air Force as stated in an interagency agreement signed in 1984. The agreement provides a way to replace obsolete FAA air route surveillance radars (ARSR-1/2) and Air Force long range radar FPS-20/60 series at 39 operational joint-use facilities with the air route surveillance radar, Model 4 (ARSR-4). The program also provides one ARSR-4 at a training and field support facility. The field support facility will include a computer capability to analyze radar performance and to provide software support and enhancements. A total of 40 ARSR-4 systems will be produced, installed, and commissioned.

Description of Problem: The current ARSR-1/2 and military primary radars (FPS-20/60) at joint-use sites are 1950 vintage vacuum-tube equipment. These radars are difficult and expensive to support logistically, and they do not provide state-of-the-art performance. In addition, eight of the existing locations are at sites that do not provide optimal air traffic control operational surveillance coverage.

Description of Solution: Provide \$11,100,000 to fund FAA's portion of the LRR replacement program in FY 1995. The funds will be used for regional site preparation activities for systems purchased with previous funding. Provide \$10,000,000 to complete procurement, site preparation, and construction of the Loring AFB, Maine, long range radar.

Benefits: The jointly-developed program to replace JSS radars with new three-dimensional radars will significantly reduce maintenance workload and logistics costs, resolve problems relating to non-availability of spare parts required by the older radars, extend coverage from 200 to 250 nautical miles, and improve detection in air traffic clutter. Accurate aircraft position information is necessary to ensure the safe separation of aircraft. This program will contribute to providing controllers with this information, and thereby will support the safety of our transportation system.

APPROPRIATION SUMMARY

	<u>ARSR Replace Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	40	\$329,641.0
FY 1994 Appropriated	---	30,417.0
FY 1995 Request	---	21,100.0
Future Requirement	---	<u>22,000.0</u>
Total	40	\$403,158.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Long Range Radar - Replace: Site preparation and construction	Various	\$11,100.0
2. Long Range Radar - Establish: Site preparation and construction	1	10,000.0
Total	Various	\$21,100.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item:	Title:	Amount:	Locations:	CIP Item(s):
2A02	ARSR-3 Leap Frog Program	\$2,000,000	1	24-15

Basis for Request: Under the FAA/Air Force Radar Replacement (FARR) Program, 10 ARSR-3 radars will be replaced by ARSR-4 three dimensional radars at joint surveillance system (JSS) sites. The replaced ARSR-3 radars, including the towers, will then be used to replace older radars at other sites. This program provides for a further upgrade of the ARSR system with attendant lower maintenance costs.

Description of Problem: The removal and relocation of the ARSR-3 assets is not funded under the joint FAA/USAF FARR program. Costs include training and site preparation at the new ARSR-3 sites plus dismantling, overhaul/refurbishment, shipping, and reinstallation of the radars and towers. The ARSR-3 radar will be reinstalled with only minimal service interruptions, i.e., an in-service replacement is planned. Commissioning flight checks and shakedown testing must also be funded.

Description of Solution: Provide \$2,000,000 in FY 1995 for removal and relocation of 1 ARSR-3 radar.

Benefits: The ARSR-3 leapfrog provides a minimal cost upgrade for 10 ARSR sites. Accurate aircraft position information is necessary to ensure the safe separation of aircraft. This program will contribute to providing controllers with this information, and thereby will support the safety of our transportation system.

APPROPRIATION SUMMARY

	ARSR Replace Locations	Amount (\$000)
Appropriated (FY 1982-1993)	2	\$5,000.0
FY 1994 Appropriated	0	0.0
FY 1995 Request	1	2,000.0
Future Requirement	7	27,600.0
Total	10	\$34,600.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost (\$000)
Relocation/Services	1	\$2,000.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Request:	Locations:	CIP Item(s):
2A03	Radar Microwave Link (RML) System Replacement/Expansion	\$8,000,000	Various	23-03, 45-05 45-06

Basis for Request: The FAA is responsible for operating National Airspace System (NAS) air route traffic control centers (ARTCC's) and other en route and terminal support facilities to provide air traffic control (ATC) services as established by the Federal Aviation Act of 1958. To accomplish this responsibility, the FAA must provide communications services to support critical, essential, and routine operations. The radio communications link (RCL) network provides technically responsive, cost-effective, and timely interfacility transmission services as a major element of the overall NAS communications services requirement.

The RCL Network consists of three parts: The RCL Backbone network, low density radio communications link (LDRCL), and routing and circuit restoral (RCR). The RCL backbone network establishes independent ARTCC to ARTCC transmission links. LDRCL provides systems for low transmission capacity requirements, and RCR provides automated routing and circuit restoral functions. The RCL Backbone Network was completed in FY 1993.

Description of Problem: The existing mix of leased service and FAA owned transmission facilities does not provide the availability, performance, or capability necessary to meet NAS operational requirements. Furthermore, the RML equipment not yet replaced is outdated, labor intensive, and increasingly difficult/expensive to support logistically. This, combined with the fact that existing leased services do not provide the network diversity required to meet the critical NAS service availability requirements, points to a need for new systems to supplement the existing interfacility communications system architecture.

Description of Solution: Provide \$3,000,000 to continue the purchase and installation of RCR equipment on the Backbone network. RCR equipment provides automated digital switching for rapid rerouting and restoral of operational circuits in the event of an interruption or failure. Provide \$5,000,000 to continue the procurement of LDRCL systems needed to replace facilities with obsolete, outdated RML equipment. This equipment will enable the FAA to reduce its reliance on leased services, improve communications reliability and availability, and provide the network diversity needed for essential air traffic communications.

Benefits: The RCL network will provide significant economic and operational benefits. When used in conjunction with low density RCL and routing and circuit restoral (RCR), the RCL network will be able to carry voice and data traffic that otherwise would require thousands of leased lines costing millions of dollars each year. Operationally, reliability will be enhanced, a high level of system availability will be provided, and automatic service restoral in cases of interrupted or failed transmission will be possible, making the RCL network a key element in the FAA's ongoing effort to improve the efficiency and safety of the NAS. The reliability of communications between air traffic controllers and pilots is vital to the safe operation of the air traffic control system. By contributing to the FAA communications network, this program will support the safety of our transportation system.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	908	\$277,830.0
FY 1994 Appropriated	---	10,500.0
FY 1995 Request	---	8,000.0
Future Requirement	---	---
Total	908	\$296,330.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Equipment/Services for:		
LDRCL	---	\$5,000.0
RCR	---	3,000.0
Total	Various	\$8,000.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2A04	Next Generation Weather Radar (NEXRAD) - Provide	\$62,000,000	Various	24-16

Basis for Request: The Next Generation Weather Radar program will establish an aviation weather radar network that provides accurate precipitation reflectivity, wind velocity, and turbulence indication data. Doppler weather radar systems will be deployed in the continental U.S. and overseas. Software algorithms will also be furnished to take advantage of the improved radar presentation of weather data.

Description of Problem: Present systems can only detect and display the location and intensity of precipitation, but do not provide any altitude information. The presence, location, and altitude of such hazardous weather phenomena as thunderstorms, downbursts, windshear, and hail are not adequately determined.

Description of Solution: Provide \$62,000,000 to continue the tri-agency procurement of the NEXRAD system. The funding will cover FAA's share of NEXRAD costs through the Joint Systems Program Office and will provide for equipment, site acquisition, deployment, and integrated logistics support. Funding will also cover the FY 1993 Congressional direction to accelerate deliveries in Hawaii and Alaska as well as acquire an additional NEXRAD for Hawaii. In addition, funding will cover continued technical and engineering support and region/center implementation costs. These radars will provide en route weather detection needs for the FAA, National Weather Service, and the U.S. Air Force.

Benefits: The NEXRAD's doppler capability and improved reliability and accuracy will improve safety and reduce weather-related delays due to better detection and characterization of hazardous weather phenomena. This program will increase the safety of our transportation system. In addition, through decreased system delays, transportation's role in supporting economic growth will be strengthened, as will the linkage between transportation and environmental policy through savings in aviation fuel consumption.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	105	\$164,046.7
FY 1994 Appropriated	11	53,600.0
FY 1995 Request	---	62,000.0
Future Requirement	---	<u>19,000.0</u>
Total	116 ¹	\$298,646.7

¹ A total of 115 shared facilities (FAA's dollar share is 20 percent) are being acquired under an incrementally funded contract administered by the Department of Commerce, NOAA. One FAA NEXRAD is for the southern flank of the big island of Hawaii in accordance with FY 1993 congressional direction.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. JSPO/NEXRAD Systems	---	\$49,400.0
2. FAA NEXRAD System	---	1,600.0
3. Technical/Engineering Support	---	1,000.0
4. Regions/Center	---	<u>10,000.0</u>
Total	---	\$62,000.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2A05	Air Traffic Control En Route Radar Facilities Improvements	\$8,898,000	Various	44-39, 44-40, 44-42, 44-43, 44-48, 46-16 56-41

Basis for Request: The en route surveillance radar systems provide the means for determining positions in the National Airspace System (NAS).

Description of Problem: The en route surveillance and beacon facilities not being replaced by the long range radar program require improvements and/or modifications to correct existing deficiencies and install state-of-the-art equipment. In addition, a continuing effort is required to resolve problems unique to certain radar sites and/or common to the entire radar system.

Description of Solution: The FY 1995 funding request will continue a multiyear program to replace radomes at en route facilities to accommodate larger Mode-S en route antennas and necessary support to solve en route radar facility operational problems.

Benefits: The planned modifications will improve safety, reduce operating costs, and provide greater efficiency in en route air traffic control and facility maintenance operations.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$129,626.0
FY 1994 Appropriated	---	5,400.0
FY 1995 Request	---	8,898.0
Future Requirement	---	1
Total	Various	\$143,924.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Replace Radomes & Modify Towers	---	\$8,000.0
2. En Route Radar In-Service Engineering	---	898.0
Total	Various	\$8,898.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item:	Title:	Amount:	Location:	CIP Items:
2A06	Advanced Automation System (AAS)	\$36,400,000	Various	21-12

See Narrative Justification for Budget Item No: 1A02

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2A07	En Route Software Development and Integration Support	\$10,300,000	Various	41-21

Basis for Request: Contractor support is required for the analysis, coding, testing, integration, and implementation of NAS software packages to correct operational problems and provide system enhancements. FAA will require contractor support at the FAA Technical Center to update, integrate, and implement software delivered with present and future Capital Investment Plan (CIP) projects.

Description of Problem: FAA requirements for software services exceed in-house capabilities. After new systems and new software become operational, problems arise that must be corrected, and several CIP projects will deliver software packages requiring integration and implementation into the NAS system.

Description of Solution: Provide \$10,300,000 for contract support for the development and implementation of NAS software. This support will consist of software development to correct deficiencies and add enhancements to the NAS as well as implement and integrate functional software developed by several contractors as part of other NAS projects. Specific items that will be funded by the FY 1995 request include: technical support for system builds; FAAAC training support; central software support; conflict resolution advisory (CRA) software upgrades; and center radar ARTS presentation (CENRAP) into the A4ec1.4 release for the en route Host software.

Benefits: The benefits include greater safety and controller productivity. Contractor support will result in fewer delays in the operational release of many national air traffic control operational software improvements and ensure that the software will continue to meet current operational requirements. By contributing to an increase in the capacity and efficiency of the air traffic control system, this program will strengthen transportation's role in supporting the economy. These enhancements will help to decrease system delays which will save aviation fuel, thereby strengthening the linkage between transportation and environmental policy.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$55,221.9
FY 1994 Appropriated	---	7,000.0
FY 1995 Request	---	10,300.0
Future Requirement	---	<u>94,778.1</u>
Total	Various	\$167,300.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Software Development, Documentation, and Implementation	Various	\$10,300.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Location:</u>	<u>CIP Item:</u>
2A08	Weather and Radar Processor (WARP) (formerly Meteorological Weather Processor (MWP) II)	\$4,700,000	Various	43-02

Basis for Request: The Weather Radar Processor (WARP) is required to provide accurate, reliable, information on current and forecast weather conditions to air traffic controllers/specialists, traffic management specialists, and meteorologists in order to accomplish their mission of safe and efficient regulation of the NAS. Information is required regarding area weather in order to avoid severe weather, optimize flight routing, anticipate the need for metering and destination changes, and to allow pilots of aircraft in-flight to select alternative jet routes and flight levels.

Description of Problem: Accurate weather information is a critical component of providing safe and efficient operation of the NAS. WARP will furnish air route traffic control center (ARTCC) controllers and center weather service unit (CWSU) meteorologists with weather radar and graphics data in order to provide timely weather advisories for safe and efficient air traffic control. Certain deficiencies in the present system have been identified, including inaccurate weather data on controllers' scopes, lack of composite/mosaic radar for controllers, the lack of interfacility access to radar mosaics, the lack of interfaces with advanced weather sensors, and the inability to allow plotting and processing of gridded upper air winds and temperature forecast data. Further capabilities are required to correct these deficiencies.

Description of Solution: WARP will be a procured system to replace the present Meteorological Weather Processor (MWP) I and provide weather directly to air traffic. WARP will add new capabilities to address the whole center weather requirement. In FY 1995, \$4,700,000 is required to award the WARP contract. This will begin development of new capability and provide limited production systems for development and testing. Accurate weather will be provided to controllers' displays using NEXRAD. Funding of these activities is required to meet testing dates with AAS to provide weather on the Initial Sector Suite System (ISSS).

Benefits: Funding of these activities will provide timely weather data acquisition and dissemination capability to ensure safe air traffic control. WARP will provide timely weather data acquisition and dissemination capability to ensure safe air traffic control. WARP provides for full FAA usage of NEXRAD.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	1,400.0 ¹
FY 1995 Request	---	4,700.0
Future Requirement	<u>23</u>	<u>2</u>
Total	23	\$6,100.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. WARP Contract	---	\$3,500.0
2. Support/engineering	---	<u>1,200.0</u>
Total	Various	\$4,700.0

¹ In FY 1994, this program was a part of the Central Weather Processor program.

² Future requirements are predicated on satisfactory completion of limited production testing.

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Amount:	Location:	CIP Item:
2A09	Aeronautical Data Link (ADL) Applications	\$15,000,000	Various	23-05, 63-05

Basis for Request: Increased air traffic and the quality of available data on the ground have strained the capability of systems that rely on voice communications. This program provides the infrastructure to interconnect information on the ground with systems to transmit the data to the aircraft and develops the necessary applications and protocols to utilize the link effectively, thereby decreasing the reliance on voice communications. Programs such as the advanced automation system (AAS), terminal air traffic control automation (TATCA) and airport movement area safety system (AMASS) require the communications functionality provided by the ADL program for domestic and oceanic air traffic control (ATC) data link services.

Description of Problem: There is no system currently in the national airspace system (NAS) which ties together the data link capabilities inherent in satellite, Mode S, and VHF air-ground data transmission systems with the NAS ground data sources. There is also no NAS element in place to support the planned international data communications network for the transfer of aeronautical information, both ground-ground and air-ground. In addition, data link services need to be defined, developed, and implemented to supplement the current voice-based air-ground communications system.

Description of Solution: Provide \$15,000,000 for the eighth year of a multiyear program to establish data link capabilities within the National Airspace System (NAS). Work to be funded in FY 1995 includes (1) continuation of development of Phase II Data Link Processor software; (2) start of the initial phases of integration testing of Aeronautical Telecommunications Network (ATN) routing functions; (3) continued support for Tower Data Link Systems (TDLS) and digital Automatic Terminal Information Service (ATIS); (4) continued development of software and related hardware to provide ATN interface and ATC functionality for Host Computer Systems for initial data link capabilities including transfer of communication, altitude assignment, message text, and free text information exchange [between pilot and controller].

Benefits: Data link services will enhance safety by allowing direct pilot access to weather and ATC information and by reducing communications errors. Pilot and controller workload will be reduced. FAA incorporation of the ATN will support the worldwide use of common data link avionics and support the evolution to common operational procedures across terminal, en route, and oceanic airspace. Programs such as AAS, TATCA and AMASS will have the required data link communications infrastructure for domestic and oceanic ATC data link services.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Activity 1</u>	<u>Activity 2</u>	<u>Total Amount (\$000)</u>
Appropriated (FY 1982-1993)	\$1,700.0	\$ 69,241.0	\$70,941.0
FY 1994 Appropriated	1,700.0	19,900.0	21,600.0
FY 1995 Request	0.0	15,000.0	15,000.0
Future Requirement	<u> </u> ¹	<u> </u> ²	<u>113,800.0</u>
Total	\$3,400.0	\$104,141.0	\$221,341.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Equipment and Services	Various	\$15,000.0

¹ Future year development requirements have not yet been defined.

² Future year procurement requirements have not yet been defined

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Location:</u>	<u>CIP Item:</u>
2A10	En Route Automation Equipment - Improve/Sustain	\$4,000,000	Various	46-16

Basis for Request: En route automation hardware and software upgrades are needed to increase system reliability and enhance air traffic control center (ARTCC) operations until replacement by the advanced automation system (AAS).

Description of Problem: The display channel is the primary processor for the planned view displays (PVDs) and suffers significant downtime. Components are not available for standard replacements and must be "reverse" engineered in order to perform repairs.

The direct access radar channel (DARC) system is an alternate route for the processing of radar data displayed on a PVD and is required in the event that either the host or the display channel become non-operational. Therefore, the DARC system requires companion upgrades for upgrades installed in the Host system in order to maintain its integrity as a full safety backup to the Host system. In addition, hardware components of the DARC system require upgrades. These efforts include circuit board upgrades, replacement of DARC disc drives with a higher density version, and additional displays.

These systems must continue to be upgraded until the introduction of the Advanced Automation System.

Description of Solution: Provide \$4,000,000 to upgrade software and hardware capabilities for en route display channels and the DARC system.

Benefits: Software upgrades to the DARC will allow for a fully functional back up to the host or display channel in the event either a host or display channel of a system fails. New equipment will improve reliability and enhance the system capability. This program will support the safety of our transportation system.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 18,718.2
FY 1994 Appropriated	---	4,000.0
FY 1995 Request	---	4,000.0
Future Requirement	---	<u>19,400.0</u>
Total	Various	\$46,118.2

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Software Upgrades and Replacement Components for En Route Display Channels	---	\$3,000.0
2. EARTS Enhancements	---	<u>1,000.0</u>
Total	Various	\$4,000.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Request:	Locations:	CTP Item#:
2A11	Oceanic Automation System	\$16,400,000	Various	61-23

Basis for Request: FAA is responsible for providing air traffic services to all aircraft flying in large areas of the Pacific and Atlantic. Oceanic air traffic growth is expected to continue at a higher growth rate than domestic air traffic, primarily in the highest density areas. Meeting this demand while maintaining the existing level of safety will require a highly coordinated program of interdependent, evolutionary hardware and software changes to the existing platforms which form the basis of the advanced oceanic automation system (AOAS) program. In addition, an AOAS must be procured for the Alaska ARTCC.

Description of Problem: To maximize air traffic throughput in high density oceanic areas, such as in the north Atlantic track (NAT) area and the continental United States to Hawaii corridor, track systems are deployed. However, due to a lack of timely surveillance data, communications delays, and a high probability of undetected flight blunders, it has been necessary to retain large vertical, lateral, and longitudinal separation standards to ensure the safe separation of aircraft in oceanic airspace. These large separation standards reduce the capacity of preferred routes and preclude many aircraft from operating at altitudes where winds are favorable and where fuel efficiency can be maximized. In addition, the indirect and often unreliable high frequency communication system with infrequent position reports, often limits the availability of the preferred routes and altitudes requested by pilots.

Existing oceanic automation subsystems cannot serve as an automation platform for the integration of new functionality without initial enhancements of hardware and software to rectify known computer/human interface limitations. Integration of necessary functionalities such as data link, automatic dependent surveillance, and the global positioning system-derived aircraft position data will impose a further need to upgrade existing hardware and software.

Description of Solution: Provide \$16,400,000 in FY 1995 to implement a certifiable situation display; begin the Advanced Oceanic Automation System (AOAS) procurement to include training for the Alaskan air traffic and airway facilities personnel; begin the establishment of FAA interfacility communications with adjacent civilian aviation administrations; and begin the replacement of the flight data processing subsystem.

Benefits: Recent technological breakthroughs, international developments, and growth in oceanic air operations make it essential for the FAA to evolve to a globally compatible AOAS that will enable safe and efficient handling of traffic that continues to increase. Available technology makes it possible to provide greatly improved navigation, communication, surveillance, and automation services to the oceanic air traffic control system. The FAA will consolidate all oceanic programs in process which will focus on a viable oceanic ATC system. Incorporation of these efforts will enable the FAA to reduce the oceanic separation standards, provide more fuel and time efficient routes to the oceanic users, and handle the anticipated growth in traffic. The anticipated benefits outweigh the estimated costs by a ratio greater than three to one.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$16,500.0
FY 1994 Appropriated	3	25,282.0
FY 1995 Request	---	16,400.0
Future Requirement	---	<u>109,418.0</u>
Total	Various	\$167,600.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantities</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Equipment and Services	Various	\$16,400.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item:	Title:	Request:	Locations:	CIP Item(s):
2A12	ARTCC Building Improvements/Plant Improvements	\$59,128,000	Various	26-09, 36-20, 46-09, 56-60

Basis for Request: The ARTCC's in the National Airspace System (NAS) provide en route separation and safe movement of aircraft. Upgrading the centers' plant and equipment, as well as making environmental and security improvements, is periodically necessary to keep pace with the increased use of national airspace. Additionally, ARTCC expansion is required to provide operational support space for functions relocated or displaced by ARTCC expansion for the initial sector suite system.

Description of Problem: Current power systems, heating, ventilating and air conditioning (HVAC) systems and architectural finishes (ceilings, walls, exterior siding) were installed in the late 1950's and early 1960's. The expected life of these items has been surpassed and this is directly responsible for inefficiencies and inadequacies in these facilities. Compounding the problem is a three-fold increase in power demand caused by the new NAS systems, particularly the advanced automation system (AAS). To maintain the current schedule and support the transition to the new systems, the current facilities will require substantial architectural renovations and major upgrades and expansions to the power and HVAC systems. This program also includes ongoing structural and support system upgrades for equipment that has surpassed its 20 year life expectancy. Items to be replaced include chillers, engine generators and associated radiators, exterior siding, roofing, water/sewer lines, and kitchen equipment. Parking lot expansions, loading dock enclosures, and implementing integrated security management systems (ISMS) are required to support the personnel and operations at each ARTCC. Without these improvements the facilities cannot continue to accommodate and support the new National Airspace System (NAS) equipment, nor provide adequate physical security.

In addition to the need to improve and modernize the ARTCC plant, there is now an operational space shortfall at all ARTCC's. This shortfall has led to the conversion of conference rooms to office space, the inability of facilities to support existing and new programs, and the placement of offices in halls and operational space. As new programs in the NAS requiring additional space are implemented, the situation only worsens. There is an effort in progress to identify and meet interim needs pending completion of this project. This interim cost will increase if there is a delay in completion of the operational support wing.

Description of Solution: Provide \$36,300,000 to continue a scheduled funding program of facility modernization at the ARTCC's. The installation of new NAS equipment is strictly dependent on preparation of facilities as planned. The plant improvements in FY 1995 focus on renovating space in support of the initial sector suite system (ISSS) and require major asbestos removal, and replacing/expanding the HVAC, power systems, and other NAS subsystem installations.

Provide \$17,500,000 to continue construction of 31,000 square foot expansions at two ARTCC's. An expansion is under construction at one location and additional funding will be requested in future budgets to complete the effort at the remaining locations. \$5,000,000 is requested to continue incremental funding for the integrated security management system (ISMS) site preparation, hardware, engineering, labor, and

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

installation costs. Also \$328,000 is requested for regional projects.

Benefits: This is a collection of improvement projects required to keep the NAS facilities efficient and up-to-date, and prepare to transition to area control facilities. These projects correct site specific problems or deficiencies, expand existing power and HVAC systems, and provide a more secure infrastructure. The additional space will relieve the existing overcrowded conditions, permit the facilities to fulfill their mission, support existing and new programs, and also permit the establishment of a work environment which is conducive to good employee morale and human relations. This program contributes to strengthening transportation's role in supporting economic growth by increasing the capacity of the air traffic control system.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$253,200.0
FY 1994 Appropriated	---	68,000.0
FY 1995 Request	---	59,128.0
Future Requirement	---	<u>812,000.0</u>
Total	Various	\$1,192,328.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Modernize/Upgrade/Sustain	Various	\$36,300.0
2. Operational Support Space		
a. A&E support site adaptation		4,500.0
b. Cleveland	1	6,500.0
c. Houston	1	6,500.0
3. Integrated Security Management System		5,000.0
4. Regional Originated Projects	<u>Various</u>	<u>328.0</u>
Total	Various	\$59,128.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2A13	Voice Switching and Control System (VSCS)	\$231,200,000	Various	21-11

Basis for Request: This program provides for the completion of full scale development and production of a voice switching and control system (VSCS) that will provide an integrated air/ground and ground/ground voice communications system that will meet current and future operational requirements.

Description of Problem: The introduction of higher levels of automation to meet the increasing demands for service exceeds the capabilities of the agency's various communications facilities and systems. The Bell 300 voice switch is not capable of the automatic reconfiguration required by the advanced automation system, is not expandable to meet the need of sector suite common consoles, much less the TRACON consolidation. In addition, the existing switch is considered to be very old communications equipment, and its future reliability is in question. The current system must be replaced with a state-of-the-art communication system. The VSCS position equipment will be installed in the existing en route controller work stations to allow for an orderly transition to the sector suites of the advanced automation system (AAS). The sector suites cannot be commissioned until the VSCS is in place and operating.

Description of Solution: Provide \$231,200,000 for the VSCS acquisition contract, technical support, and implementation costs to support full scale production.

During FY 1994, a full production decision will be authorized, software upgrades containing essential requirements will be integrated at the FAATC, and operational tests and evaluation will be completed. The physical and functional configuration audits for the system meeting essential requirements will be completed. Factory acceptance tests of software meeting those requirements necessary to transition to ISSS will be started. Software development will begin on functionality required to meet all of the VSCS requirements for the ISSS transition time frame. Development of planned product improvement (PPI) will proceed.

Also in FY 1994, delivery to Seattle, FAA Aeronautical Center (FAAAC), Salt Lake City, and Denver will be completed. Site surveys will be conducted at 10 sites. Procurement of long lead equipment for 12 sites and 9 production systems will be ordered.

At the first operational site, Seattle, site installation and checkout will be completed, and system familiarization tests will be in progress.

At the second operational site, Salt Lake City, site installation and checkout will be completed, and familiarization will be underway.

During FY 1995, the software that meets all operational readiness deployment requirements for the current control room will be delivered to FAATC, and operational test and evaluation (OT&E) will be completed. VSCS will become operational at Seattle, Salt Lake City, Denver, and Atlanta. Development of PPI will

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

continue and include area control computer complex (ACCC).

Also during FY 1995, site surveys for the remaining sites will be completed. Procurement of long lead equipment for three sites and eleven production systems will be accomplished. An additional system will be procured for the Southern California TRACON off the VSCS contract but funded from a separate line item (See budget item 2B26, p. 110). Delivery of systems will be made to the following nine sites: Atlanta, Anchorage, Chicago, Fort Worth, Washington, Houston, Boston, Cleveland, and New York.

Activities at operational sites continue to be funded in FY 1995. Shakedown testing and operational readiness demonstrations will be completed at the first four sites. Installation, checkout and shakedown testing activities will take place at the nine sites to which systems will be delivered in FY 1995. Site preparation activities will continue at the remaining sites in order for those sites to be ready for installation when VSCS is delivered in FY 1996.

Benefits: The VSCS will be based on a design concept that will permit standardization of console equipment, switching system interfaces, and radio control equipment. It will provide a very high level of availability in the support of critical ATC functions. These features make VSCS a system which advances U.S. technology and expertise. As VSCS is a related system to the advanced automation system, it contributes to the achievement of AAS benefits. The design will facilitate maintenance while providing efficient utilization of transmission resources. The airway facilities maintenance savings are estimated at \$263,000,000 over the life cycle of the system.

APPROPRIATION SUMMARY

	<u>Activity 1</u>	<u>Activity 2</u>	<u>Total Amount (\$000)</u>
Appropriated (FY 1982-1993)	\$681,170.0	\$ 33,000.0	\$ 714,170.0
FY 1994 Appropriated	61,500.0	146,000.0	207,500.0
FY 1995 Request	0.0	231,200.0	231,200.0
Future Requirement	<u>0.0</u>	<u>254,100.0</u>	<u>254,100.0</u>
Total	\$742,670.0	\$664,300.0	\$1,406,970.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Prime Contract	---	\$201,600.0
2. Technical Support	---	14,600.0
3. Field Support	---	<u>15,000.0</u>
Total	Various	\$231,200.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item:</u>
2A14	Remote Communication Facilities (RCF) Expand/Relocate	\$5,400,000	Various	34-23

Basis for Request: In order to meet air traffic operational needs for air/ground communications, it is essential to expand existing RCFs including remote center air/ground communications facilities (RCAGs), remote communications outlets (RCOs), and remote transmitter receivers (RTRs) by adding air/ground communications frequencies and relocating owned/leased facilities for proper communication coverage. This project will provide a vehicle for facilities to meet specific operational requirements based upon resectorization and traffic demands instead of limiting refinements of the system due to present radio coverage constraints.

Description of Problem: In several instances, radio communications between pilots and air traffic controllers have been impaired, reduced, or lacking. Corrective action must be taken to preserve safety. Changes in traffic volume and complexity have compounded problems and require improved air route traffic control center communication. Currently, there are more than 300 approved but unfunded program requirements.

Description of Solution: Provide \$5,400,000 to fund procurement of equipment such as racks, cables and transmitters, receivers, and their installation, which will improve air-ground communication capability and provide support for remote communication facilities.

Benefits: This is a collection of projects to improve communication coverage for operational needs. The projects are mainly for correction of site specific problems or deficiencies such as establishing additional RCF channels and improving ARTCC sectorization. The reliability of communications between air traffic controllers and pilots as well as other controllers is vital to the safe operation of the air traffic control system. By contributing to the FAA communications network, this program will support the safety of our transportation system.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$13,000.0
FY 1994 Appropriated	---	5,500.0
FY 1995 Request	---	5,400.0
Future Requirement	---	
Total	Various	\$23,900.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Equipment and Services/Regional Cost	Various	\$5,400.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item:</u>
2A15	Traffic Management System (TMS)	\$10,800,000	Various	21-06

Basis for Request: There is a critical need to obtain near-term improvements in system performance and to reduce aircraft delays while the long-term TMS program continues to be defined. The required improvements include completing automation efforts which will present strategies to the traffic management specialists to resolve very high system demand levels, provide additional monitoring capabilities in the air traffic control systems command center (ATCSCC), and provide enhanced system monitoring.

Description of Problem: The need to upgrade the TMS to provide more effective traffic flow management in the national airspace system (NAS) is critical. Improved flow control techniques are essential to reduce aircraft delays, support projected growth in aviation traffic, effectively utilize data from the air traffic control systems command center (ATCSCC), and to enable real time monitoring of special use airspace to provide full-time use of the NAS to all users.

Description of Solution: Provide \$10,800,000 in FY 1995 to continue the interfacility communication network replacement, and test, integrate, and implement the automated demand resolution effort.

Benefits: The TMS upgrade program will provide a nationally integrated system to improve monitoring of the air traffic system and to enhance assessments of system demand and capacity. It will enable flow control and traffic managers to decrease system delays by employing traffic flow strategies which are highly responsive to existing and projected air traffic scenarios. By contributing to an increase in the capacity and efficiency of the air traffic control system, this program will strengthen transportation's role in supporting the economy. These enhancements will help to decrease system delays which will save aviation fuel, thereby strengthening the linkage between transportation and environmental policy.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$124,883.5
FY 1994 Appropriated	---	16,200.0
FY 1995 Request	---	10,800.0
Future Requirement	---	<u>7,400.0</u>
Total	Various	\$159,283.5

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Telecommunication	---	\$4,910.0
2. Software Enhancement	---	5,000.0
3. System Support, Training, and Documentation	---	<u>890.0</u>
Total	Various	\$10,800.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2A16	Data Multiplexing Network (DMN)	\$5,500,000	Various	25-02, 45-02

Basis for Request: DMN provides the National Airspace System (NAS) with state-of-the-art data communications technologies for cost effective point-to-point data transmissions. These technologies include: (1) data multiplexing which significantly increases telecommunication circuit capacity by combining several communications requirements over a single leased line; and (2) automated network monitoring and control, which enables the identification of failed network elements from central locations and allows real-time circuit restoral.

Description of Problem: A continuing effort is required to proceed with installations of Phase III network equipment. Phase III networks will replace outdated Phase I/II equipment and will provide communications services to the majority of NAS Capital Investment Plan (CIP) projects, including discrete addressable secondary radar system with data link (Mode-S), terminal doppler weather radar (TDWR), remote maintenance monitoring system (RMMS), digital bright radar indicator terminal equipment (DBRITE), automated weather observation system (AWOS), interfacility data (IDAT), traffic management system (TMS), and computer based instruction (CBI).

Description of Solution: The use of data multiplexing is an integral part of the FAA's strategy for cost effective interfacility communications transmission. This project consists of three phases: Phase IIIA provides statistical time division multiplexing (STDM) equipment, Phase IIIB provides deterministic time division multiplexing (DTDM) equipment, and Phase IIIC provides digital service (DS-1) equipment. Phase IIIA was awarded in April 1992. Phase IIIB was awarded April 1990. Phase IIIC equipment, which was acquired under the radio communications link (RCL) backbone contract, is complete. Provide \$5,500,000 in FY 1995 to continue the purchase and installation of Phase IIIA STDM and Phase IIIB DTDM equipment.

Benefits: DMN provides significant economic and operational benefits. As the Phase IIIA and Phase IIIB networks are implemented, thousands of existing leased lines can be eliminated, and future requirements for leased lines will be reduced. Over \$5,000,000 in leased communications savings/cost avoidance will be realized from FY 1993 through FY 1995. Additional savings will be achieved as Phase I/II equipment, which is outdated and expensive to maintain, is replaced with Phase III systems. Operationally, automated network monitoring and control systems will improve the reliability and availability of essential NAS communications services. The reliability of communications between air traffic controllers and pilots is vital to the safe operation of the air traffic control system. By contributing to the FAA communications network, this program will support the safety of our transportation system.

FY 1995 OFFICE OF MANAGEMENT AND BUDGET
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 52,941.3
FY 1994 Appropriated	---	17,500.0
FY 1995 Request	---	5,500.0
Future Requirement	---	<u>15,500.0</u>
Total	Various	\$91,441.3

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Equipment and Services	Various	\$5,500.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Locations:</u>	<u>CIP Item#:</u>
2A17	Critical Telecommunications Support	\$12,700,000	Various	45-20, 46-16

Basis for Request: The FAA must improve its telecommunications services to increase reliability, flexibility, and survivability, and control and reduce costs. The acquisition and management of agency telecommunications systems is a key element of FAA's strategy to meet this commitment. Systems currently implemented or in the process of being implemented include the data multiplexing network (DMN), the radio communications link (RCL), the national airspace data interchange network (NADIN II), and the leased interfacility NAS communication system (LINCS).

Description of Problem: Telecommunications systems owned and/or managed by FAA require annual modifications and minor expansions to meet new critical requirements. Included are equipment purchases, the addition of transmission circuit drop-insert capability, capacity expansion, circuit cutovers, and terminal equipment rearrangements, minor switching system expansions, and equipment for preparation for leased services. Continuous network changes are necessary to ensure that the network meets operational requirements in a cost-effective manner at all times.

Description of Solution: Provide \$12,700,000 to support telecommunications facilities operation and leased communications initiatives. Funding will provide RCL circuit terminations, increase RCL circuit capacity, reconfigure the data multiplex network, provide diversity switching, and support leasing initiatives including LINCS. Included is \$8,700,000 for one-time, non-recurring leased telecommunications costs for new NAS equipment for up to one full fiscal year beyond the year of commissioning/operation. Future requirements will be budgeted within the affected programs.

Benefits: Telecommunications support projects will improve NAS telecommunication operations by increasing existing capacity and capabilities and meet performance requirements through improved reliability, availability, and maintainability, and increase savings.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$48,007.3
FY 1994 Appropriated	---	2,000.0
FY 1995 Request	---	12,700.0
Future Requirement	---	¹
Total	Various	\$62,707.3

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

FY 1995 OFFICE OF MANAGEMENT AND BUDGET
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Centrally Procured Equipment and Services	Various	\$4,000.0
2. Leased Telecommunications	<u>Various</u>	<u>8,700.0</u>
Total	Various	\$12,700.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Locations:</u>	<u>CTF Item(s):</u>
2A18	En Route Communications and Control Facilities Improvement	\$7,189,000	Various	42-22, 46-16

Basis for Request: The FAA must upgrade and improve various en route communications facilities and equipment on a continuing basis to satisfy operational requirements. The communications facilities provide the means for continuous reliable air/ground communications for air traffic control service. Increases in traffic and airspace restructuring require additional operating positions to operate an efficient air traffic control (ATC) system. The San Juan combined center radar approach control (CENRAP) is in need of repair and a general upgrading of equipment to sustain the ATC system in San Juan until the facility can be consolidated into the Miami area control facility (ACF) in the post-FY 2000 time period.

Description of Problem: New communications equipment must be installed for additional operating positions to meet air traffic control requirements for increased traffic and airspace realignments. Additional flight data input/output (FDIO) devices are also required to provide interfacility communications in support of additional positions. Obsolete and worn out communications equipment must be replaced on an annual basis. Existing facilities must be improved or expanded to assure the continuance of existing service and maintenance of the air traffic control system.

Description of Solution: Provide \$7,189,000 to provide improvements required to sustain the existing San Juan CENRAP facility, replace obsolete and worn out equipment, establish or relocate remote communications outlet (RCO) frequencies, convert VFSS radio equipment to digital, establish additional sector, and provide in-service engineering to improve and maintain the air traffic control communications system.

Benefits: Air-to-ground and inter/intra facility communications are among the most important entities in the performance of air traffic control. This is a collection of improvement projects required to keep the national airspace system facilities efficient and current. This effort corrects site specific problems or deficiencies, additional operating positions to meet increased traffic volume and airspace restructuring site preparation and terminal in-service engineering. Additional benefits of these programs are decreased maintenance costs, service improvements, avoided delays, and maximum capability of technological advances, minimized duplicate automation features. The reliability of communications between air traffic controllers and pilots as well as other controllers is vital to the safe operation of the air traffic control system. By contributing to the FAA communications network, this program will support the safety of our transportation system.

FY 1995 OFFICE OF MANAGEMENT AND BUDGET
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 65,541.1
FY 1994 Appropriated	---	8,856.0
FY 1995 Request	---	7,189.0
Future Requirement	---	1
Total	Various	\$81,586.1

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. San Juan CENRAP - Sustain	1	\$3,400.0
2. RML-2 - Replace	1	673.0
3. VFSS - Replace	1	421.0
4. RCAG Tower - Replace	1	205.0
5. RCO Frequency - Establish	3	675.0
6. RCO Frequency - Relocate	1	139.0
7. VFSS Radio Equipment - Convert to Digital	6	241.0
8. Additional Sector - Establish	5	135.0
9. In-Service Engineering	---	1,300.0
Total	19	\$7,189.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Range:</u>
2A19	NADIN II - Enhancements	\$3,800,000	Various	25-07, 35-07

Basis for Request NADIN II will provide the FAA with a state-of-the-art packet switched network (PSN). This network will provide critical interfacility communications needed to support efficient NAS operations and ensure air safety. This will be achieved through distributed network architecture, high system reliability, increased throughput capacity, automatic alternate routing, switching control, and enhanced service availability. The community of host computer systems currently under development within the Capital Investment Plan (CIP) cannot function as a nationwide entity without the network communications service that NADIN II will provide.

Description of Problem Due to programmatic cost growth resulting from contractor delays, the program was redirected in FY 1992. Since then, the COTS Network and Gateway Build 2 have been installed. FY 1995 funds are required to complete the NADIN II program.

Description of Solution Provide \$3,800,000 to complete implementation of the Gateway, procure additional spares for the network, and provide training and contractor support.

Benefits NADIN II offers significant economic and operational benefits. NADIN Packet Switched Network (PSN) technology maximizes savings through the sharing of network resources. A comparable network of dedicated circuits would require thousands of leased lines. Operationally, NADIN II provides the capacity to exchange large quantities of data, increases services availability, enhances system reliability and data integrity, decreases delays, and increases safety. The reliability of communications between air traffic controllers and pilots is vital to the safe operation of the air traffic control system. By contributing to the FAA communications network, this program will support the safety of our transportation system.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$54,795.3
FY 1994 Appropriated	---	7,600.0
FY 1995 Request	---	3,800.0
Future Requirement	---	900.0
Total	Various	\$67,095.3

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity/Task</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Equipment and Services	Various	\$3,800.0

**FY 1995 OFFICE OF MANAGEMENT AND BUDGET
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Location:</u>	<u>CIP Item(s):</u>
2A20	Satellite Communications Circuit Back-up	\$1,500,000	13	45-21

Basis for Request This project provides design, development, and implementation of a satellite communications system to serve both existing and future operational telecommunications networks serving the traffic management system (TMS) and the meteorologist weather processor (MWP), and provides alternate diverse communications paths to avert widespread service outages from single points of failure. All operational FAA facilities will directly or indirectly benefit from this project.

Description of Problem The FAA requires a highly reliable nationwide telecommunications system capable of exchanging critical voice and data traffic among numerous air traffic control (ATC) locations. To meet this requirement the FAA established goals to modernize and improve interfacility communications among sites to meet ATC operational needs, safety of flight, and NAS objectives. Programs are underway to provide reliable terrestrial telecommunications (e.g., RCL and LINCOS). Currently there is no means of providing the equivalent services in applications where the use of satellites is cost beneficial or where no adequate diverse path is terrestrially available. There is a need for the consolidation of existing and future satellite networks into a single network to provide cost efficiencies by enabling the sharing of earth station resources among several users, and to consolidate network management and control. There is also the need for a single network to avoid having multiple satellite antenna systems, which has been a severe problem at some FAA facilities. The existing TMS and MWP contracts for satellite services will expire in December 1995. It is essential that the satellite services be available to continue these operational services. Also, recent major telecommunications outages that severely impacted the National Airspace System have highlighted the need for rapid implementation of communication diversity.

Description of Solution Provide \$1,500,000 for continuation of a multiyear program to use satellite transponders as a shared resource to satisfy the air traffic control operational needs effectively and economically. The FY 1995 funding will provide for approximately 13 sites.

Benefits With satellite services, critical air-to-ground communications requirements will be satisfied to ensure FAA safety of flight and operational necessities.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 9,400.0
FY 1994 Appropriated	---	0.0
FY 1995 Request	---	1,500.0
Future Requirement	---	17,500.0
Total	Various	\$28,400.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Equipment and Services	13	\$1,500.0

**FY 1995 OFFICE OF MANAGEMENT AND BUDGET
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Request:	Locations:	CIP Years:
2A21	DOD Base Closure - Facility Transfer	\$10,700,000	Various	32-28

Basis for Request The military has a Congressional mandate to close a number of bases. Some of these bases currently provide air traffic services. The FAA will have to assume these services six months before the bases close.

Description of Problem In October 1991, Congress approved 35 bases for closure. These bases began closing in 1992. In addition, the 1993 list was announced, and the final round of closures are scheduled to be announced in 1995. The DOD is currently performing significant air traffic control functions for civilian users of the NAS in the vicinity of certain bases. The FAA is required by the Federal Aviation Act of 1958 to foster aviation and to provide air traffic services where needed. In addition, FAA is encouraging local communities to continue to operate bases as civilian airports to minimize system capacity constraints.

Description of Solution Provide second year funds in the amount of \$10,700,000 to allow the FAA to convert various military bases to civilian facilities with standard FAA equipment. The FAA expects to use the existing military equipment on these bases and remove some functions until the equipment can be replaced with standard FAA equipment (e.g., radar, landing aids, communications).

Benefits System capacity will improve. Large volumes of aircraft currently operate continuously within the nation's airspace system and further growth and expansion in capacity is closely linked to the number of properly equipped and maintained airports. The closure of military bases and subsequent conversion of these bases to civilian airports has the potential to add needed landing capacity to many communities. The transition from military to FAA control will result in substantial costs to FAA although the overall program will be beneficial to the government and supports defense conversions. This program will strengthen transportation's role in supporting economic growth.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	7,600.0
FY 1995 Request	Various	10,700.0
Future Requirement	<u>Various</u>	<u>162,700.0</u> ¹
Total	Various	\$181,000.0

¹ Requirements are based on activity levels and local situations which are validated on a year-to-year basis. This total reflects requirements for the 1991 and 1993 DOD Base Closure Commission report and projections for the 1995 report.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Program Management	---	\$ 2,000.0
2. System Hardware/Implementation	---	<u>8,700.0</u>
Total	Various	\$10,700.0

FY 1995 OFFICE OF MANAGEMENT AND BUDGET
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2A22	Central Altitude Reservation Function (CARF)	\$1,500,000	Various	46-16

Basis for Request CARF is an essential element in the coordination and approval of large scale military aircraft, special missions, and classified activities. It is recognized internationally as the prime office for coordinating these missions. The current facility requires a major modernization to meet requirements.

Description of Problem No system upgrades to the CARF facility have been made in the past seven years. It has major communications deficiencies, an obsolete computer system located in Atlantic City, and no workstations. It has no direct communications with Service B, AUTODIN, or NADIN. Specialists must leave the facility to walk to the FAA Communications Center located on the first floor to pick up/deliver mission message traffic along with CARF NOTAM messages. Recent world events such as Desert Storm and Desert Shield have validated the requirement to continue the CARF facility.

Description of Solution Provide funds in the amount of \$1,500,000 to upgrade the CARF facility with a new computer system, workstations, and an adequate communications system.

Benefits CARF will be more responsive to DOD and ATC requirements for both domestic and international traffic.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 750 0
FY 1994 Appropriated	---	1,500 0
FY 1995 Request	Various	1,500 0
Future Requirement	<u>Various</u>	<u>1,500 0</u>
Total	Various	\$5,250 0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1 Computers/Workstation	---	\$600 0
2 Communications System	---	300 0
3 Software Development	---	500 0
4 Program Support	---	100 0
Total	Various	\$1,500 0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2A23	Display Channel Complex Rehost (DCCR)	\$2,000,000	Various	46-31

Basis for Request: Existing air route traffic control center (ARTCC) display channel equipment will be in service longer than originally planned due to delays in the implementation of the advanced automation system (AAS). This project will provide enhancements to keep the system operational until implementation of AAS.

Description of Problem: ARTCC display channels have experienced a trend toward higher failure rates in recent years.

Description of Solution: Funding is requested in FY 1995 for program spares.

Benefits: There will be an increase in sustainability which will improve safety by decreasing the probability of system failures.

APPROPRIATION SUMMARY

	<u>Locations:</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0 0
FY 1994 Appropriated	---	2,000 0
FY 1995 Request	---	2,000 0
Future Requirement	<u>Various</u>	0 0
Total	Various	\$4,000.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantities</u>	<u>Estimated Cost (\$000)</u>
Enhancements	Various	\$2,000.0

**FY 1995 OFFICE OF MANAGEMENT AND BUDGET
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2A24	En Route Analysis and Reporting System (EARS)	\$2,000,000	Various	51-22

Basis for Request: The FAA must provide for the safe and efficient use of airspace. These goals are manifestly mandated by the FAA Act of 1958 under Title I, Sections 102(a) and 103, and Title III, Section 307, to wit:

Title I, Section 102(a), provides that the common system shall facilitate adaptation of air transportation to present and future needs of the domestic and foreign commerce of the United States.

Title I, Section 103 specifically charges the FAA with control of the use of navigable airspace of the United States and the regulation of operations in such airspace in the interest of safety and efficiency.

Title III, Section 307 authorizes and directs the FAA to develop plans for and formulate policy with respect to the use of navigable airspace and assign rule, regulation, or order the terms, conditions, and limitations deemed necessary to ensure the safety of aircraft and efficient use of airspace.

Satisfaction of requirements as stipulated in the Concepts and Descriptions of the Future Air Traffic Management System for the United States, and FAA Order 7032.9.

Description of Problem: Current Traffic Flow Management capabilities are generally provided by stand-alone tools that use disparate data sources and operate as closed systems on vendor specific platforms. There is currently no integration effort underway to accommodate the deficiencies of (1) verbal/manual data exchange, (2) multiple user interfaces, not user friendly, (3) multiple data sources, program unique HCI, multiple unique data bases, (4) no real time "what if" analyses, (5) no access to measure operational effectiveness, (6) no validation or measure of effectiveness for current or proposed TFM systems, tools, data, or models, (7) no performance metrics, and (8) manual assessments of operational changes affecting capacity, demand, environment, workload, or performance.

Description of Solution: This mission need addresses the need to integrate existing tools and capabilities and continually integrate and deliver those emerging from other projects, particularly those from R&E&D, or other sources such as government off the shelf (GOTS), commercial off the shelf (COTS) and academic sources, into a distributed, open systems computing environment envisioned for Traffic Flow management. This effort will assure interoperability of separately developed traffic flow management capabilities, including tools and data to support analysis, assessment, the establishment and continual reassessment of NAS performance metrics measurement, and "what if" management scenarios on a real time or near real-time basis at local and national levels.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

In support of this mission, many existing and required capabilities have been identified through completed and on-going work group efforts, mission needs, orders, R.E&D and NAS program initiatives. Some capabilities existing or under development require integration and others are needed and require development.

Benefits Information at local and national levels will be fully utilized and will foster effective analysis of the NAS. National and local facilities will have the complete picture or all the necessary data, thereby enhancing analysis. National and local levels will have access to tools for (1) assessment of performance metrics, (2) performance optimization, (3) analysis, (4) prediction, (5) workload measures, (6) simulation, (7) statistics, (8) replay, and (9) structured query language for status of components.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	0.0
FY 1995 Request	Various	2,000.0
Future Requirement	<u>Various</u>	<u>19,200.0</u>
Total	Various	\$21,200.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Hardware and Software	Various	\$2,000.0

FY 1995 OFFICE OF MANAGEMENT AND BUDGET
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Location:</u>	<u>CIP Item:</u>
2A25	Performance Monitoring Analysis System (PMAS)	\$1,000,000	Various	46-16

Basis for Request The current systems and techniques used to assess air traffic control (ATC) automation adequacy and to project future need requires significant enhancements. An automated means of data collection and analysis to support the projection, both long and short term, of the capacity and performance of air traffic automation systems (en route and terminal) is required. Such a system must provide sufficient data to project and justify new and enhanced operational hardware and software for the ATC automation systems. An automated means to assess processor capacity under average and maximum traffic loads is needed. Such a system must be capable of projecting capacity growth requirements with sufficient lead time to allow procurement of the required hardware and software to satisfy the capacity requirements. Such a need has been identified in several GAO reports.

Description of Problem At the present time, only automated radar terminal system (ARTS) sites and the en route Host equipment provide any capacity data. The computer reliability data and capacity data is collected in a variety of manual and automated forms. Data collection is largely a labor intensive effort, difficult to enhance, and inflexible. The collection is sometimes incomplete. The integration and analysis of this data is time consuming and labor intensive, plus the volume of data precludes any in-depth analysis. Other valuable parameters that would be useful in supporting capacity analysis are not collected. It is extremely difficult to compare processor capacity data with either the ATC system capacity data or the reliability/maintainability data of the national airspace performance reporting system (NAPRS). Because of these deficiencies, it is extremely difficult to use the data to project and/or justify new/enhanced operational hardware and software for the ATC automation systems.

Description of Solution Provide \$1,000,000 to continue procurement of data collection devices for TRACONs and ARTCCs for the collection of performance data and archiving of that data on a periodic basis. PMAS will provide an integrated performance monitoring information system that will provide data for addressing the adequacy of the air traffic automation systems which is expandable beyond just ARTS and Host. The system will automatically collect data in a format that will facilitate access for various operations and service organizations.

Benefits This program will provide an automated means to support capacity and performance of the air traffic system, both en route and terminal.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	900.0
FY 1995 Request	---	1,000.0
Future Requirement	<u>Various</u>	<u>5,200.0</u>
Total	Various	<u>\$7,100.0</u>

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Program Management	Various	\$1,000.0

**FY 1995 OFFICE OF MANAGEMENT AND BUDGET
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Amount:	Locations:	CIP Item:
2A26	Backup Emergency Communications (BUEC) - Interim	\$3,000,000	Various	44-05

Basis for Request The present backup emergency communication (BUEC) system for air route traffic control centers (ARTCCs) was initially installed in the late 1950s. The system's utility has been reduced by a significantly changed operating environment, e.g., loss of alternate leased circuits to air/ground radio control outlets (RCOs) and reduced coverage due to changing air traffic sectors. More significantly, the older technology can no longer be economically procured, thus dramatically increasing the maintenance costs over time. Extensive effort in the operations and maintenance communities has been necessary to maintain a minimum BUEC system using available equipment. The existing BUEC system has been identified as the most urgent maintenance and logistics problem in the NAS.

Description of Problem The decreasing availability of BUEC spare parts has resulted in supply support and associated maintenance problems with the 20 plus year old BUEC equipment. The inability to economically acquire critical spare parts without reverse engineering presents a potential for substantial system degradation in the next few years.

Description of Solution \$3,000,000 is requested for the initial procurement of BUEC interface communication equipment, stand alone environmental enclosures, antennas, systems integration, and site preparation. Additionally, initial quantities of transmitters and receivers will be procured from an existing FAA contract and integrated with the above equipment to complete the system. A proof-of-concept study has demonstrated this system architecture using commercially available equipment. This system architecture will be translated into a national procurement which will systematically replace existing BUEC sites.

Benefits This procurement will provide the Federal Aviation Administration the upgrade necessary to improve backup emergency communication for the ARTCCs while reducing maintenance requirements and substantially decreasing radio frequency interference.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0 0
FY 1994 Appropriated	---	0 0
FY 1995 Request	---	3,000 0
Future Requirement	---	<u>14,500 0</u>
Total	Various	\$17,500 0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Equipment and Services	Various	\$3,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item:	Title:	Amount:	Location:	CF Range:
2B01	Airport Surveillance Radar (ASR)	\$20,500,000	Various	24-13, 44-60, 34-13

See Narrative Justification for Budget Item No. 1B(1)

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Locations:</u>	<u>CFR Number:</u>
2B02	Terminal Doppler Weather Radar (TDWR) - Provide	\$25,000,000	Various	24-18

Basis for Request: The terminal doppler weather radar program will establish a terminal aviation weather radar capability that will provide accurate aviation weather products (microburst, gust fronts, and related hazardous windshear) and furnish software algorithms to improve the radar presentation of weather data

Description of Problem: Present radar systems can only detect the location and intensity of precipitation. The presence, location, and altitude of such hazardous weather phenomena as turbulence, microbursts, and gust fronts producing windshear conditions are not adequately determined.

Description of Solution: Provide \$25,000,000 to continue implementation of 47 TDWR systems at high activity terminal locations that experience microburst and other hazardous weather phenomena. Funding will cover implementation activities performed by the TDWR prime contractor, regions, and technical and engineering support contractors.

Benefits: The terminal doppler weather radars deployed at commercial airports will increase aviation safety with accurate and timely detection of hazardous aviation weather conditions. Weather related arrival and/or delay departure delays will be reduced allowing savings in aviation fuel consumption. This program will increase the safety of our transportation system. In addition, through decreased system delays, transportation's role in supporting economic growth will be strengthened, as will the linkage between transportation and environmental policy through savings in aviation fuel consumption.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	47	\$337,647.0
FY 1994 Appropriated	---	5,806.0
FY 1995 Request	---	25,000.0
Future Requirement	---	<u>4,900.0</u>
Total	47	\$373,347.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. TDWR Prime Contractor	---	\$19,700.0
2. Technical/Engineering Support	---	4,900.0
3. Regions/Centers	---	<u>400.0</u>
Total	Various	\$25,000.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item	Title	Request	Location	EXP Item(s)
2B03	Mode S - Provide	\$24,900,000	Various	24-12

Basis for Request Mode S is the successor to the air traffic control radar beacon system (ATCRBS) as FAA's secondary surveillance capability. Although the production buy is funded in prior years, regional test equipment, and other software modification costs were deferred while awaiting contractor deliveries of equipment and software.

Description of Problem The current radar is limited in its ability to keep pace with air traffic growth. Without improved surveillance, additional radar track processing, digital target reports, and data link, most of the controller/pilot productivity enhancements inherent in the advanced automation projects cannot be realized. Labor intensive maintenance and expensive, obsolete parts drive operational costs even higher for current radars.

Description of Solution Acquire Mode S ground sensors to relieve the secondary surveillance deficiencies noted above and provide a data source suitable for the advanced automation system (AAS). The FY 1995 request would provide \$11,000,000 for Mode S test sets, \$1,500,000 for RMMS interface, \$2,500,000 for regional site preparation, \$2,800,000 for test equipment, \$4,100,000 for provisioning, \$2,000,000 for engineering support, and \$1,000,000 for operational test and evaluation (OT&E) performance upgrades.

Benefits Compared with the current system, Mode S will improve accuracy, reduce interference, replace hard-to-maintain equipment, provide a digital output, and improve productivity with a two way data link between aircraft and controllers or data bases on the ground. As this program is related to the advanced automation system (AAS), it will contribute to strengthening transportation's role in supporting economic growth by enabling increased capacity of the air traffic control system, strengthen the linkage between transportation and environmental policy by contributing to aviation fuel savings, and aid in advancing U.S. Transportation Technology and expertise. The program purchases 137 Mode S systems to provide radar coverage to the ground at 108 terminals and to 12,500 feet in other areas.

APPROPRIATION SUMMARY

	Locations	Amount (\$000)
Appropriated (FY 1982-1993)	137	\$403,200 0
FY 1994 Appropriated	---	10,100 0
FY 1995 Request	---	24,900 0
Future Requirement	---	0 0
Total	137	\$438,200 0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activin Tasks</u>	<u>Locations/ Quantin</u>	<u>Estimated Cost (\$000)</u>
1 Test Sets	---	\$11,000.0
2 RMMS Interface	---	1,500.0
3 Regional Site Prep	---	2,500.0
4 Test Equipment	---	2,800.0
5 Provisioning	---	4,100.0
6 Engineering Support	---	2,000.0
7 OT&E Performance Upgrades	---	1,000.0
Total	Various	\$24,900.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Location:</u>	<u>CIP Item:</u>
2B04	Digital Bright Radar Indicator Tower Equipment (DBRITE)	\$2,700,000	Various	32-16

Basis for Request The FAA requires additional DBRITE equipment to meet existing and new service requirements for primary and satellite towers. This equipment is used to assist the air traffic controller in identifying and sequencing aircraft traffic, and is an important aid in providing traffic advisories to aircraft in visual flight rules (VFR) conditions

Description of Problem Air traffic growth and procedural changes now qualify additional satellite towers for DBRITE and selected existing DBRITE towers for position expansion

Description of Solution Provide \$2,700,000 to continue procuring additional DBRITE equipment with initial spares, installation, and provisioning

Benefits The DBRITE equipment will provide additional display positions at busy air traffic control towers and establish positions at remote towers that do not currently have a radar display. This will reduce verbal coordination and increase safety at both the hub and remote towers. This program will support the safety of our transportation system

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1995)	---	\$10,700 0
FY 1994 Appropriated	---	3,600 0
FY 1995 Request	---	2,700 0
Future Requirement	---	<u>35,300 0</u>
Total	Various	\$52,300 0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity/Task</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
DBRITE Contract	Various	\$2,700 0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Amount:	Location:	CIP Item:
2B05	Terminal Software Development Support	\$4,000,000	Various	42-21

Basis for Request: Software enhancements and modification implementation to the terminal air traffic control system are required to ensure that these NAS facilities meet the increasing operational and safety needs

Description of Problem FAA requirements for modernizing and enhancing terminal automation software/firmware exceed in-house capabilities. The implementation of enhancements to software for the existing operational automated radar terminal systems (ARTS) and en route automated tracking systems (EARTS) must continue until replacement with the advanced automation system (AAS).

Description of Solution Provide \$4,000,000 for contractor support for existing software and firmware, including implementation of corrections of software anomalies and enhancements to satisfy required system processing modifications: integration of ARTS/EARTS operational software enhancements, and support and configuration control of the national library of local case files.

Benefits By contributing to an increase in the capacity and efficiency of the air traffic control system, this program will strengthen transportation's role in supporting economic growth. Continued terminal automation system software/firmware improvement will keep the NAS facilities operating until AAS implementation, ensuring software/firmware functionality meets operational and safety requirements.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 20,500.0
FY 1994 Appropriated	---	7,400.0
FY 1995 Request	---	4,000.0
Future Requirement	---	1
Total	Various	\$31,900.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Terminal Software Development Implementation	Various	\$4,000.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item	Title	Amount	Locations	CIP Range
2B06	Chicago Terminal Radar Approach Control (TRACON) Relocation	\$2,400,000	1	32-24

Basis for Request: The Chicago O'Hare TRACON is the second busiest terminal radar approach control facility in the United States, handling over one million flights annually to and from O'Hare International Airport and at surrounding satellite airports including Chicago Midway. Instrument operations at the Chicago TRACON have increased annually by 4.5 percent from FY 1984 through FY 1989, and are forecast to increase annually by 6.7 percent from FY 1990 through FY 1995. Actual growth in instrument operations at FAA towered satellite airports (approach control services provided by O'Hare TRACON) have increased over 100 percent from FY 1984 through FY 1989.

Description of Problem: The existing TRACON facility was established in 1971 and has been reconfigured and expanded to its maximum. The facility cannot be expanded to meet current and future traffic activity requirements. Further expansion or additions to the existing facility are not feasible due to the location of the O'Hare TRACON building relative to other airport facilities and structures. These facts as well as relocation alternatives and recommendations have been identified in a facility staff study as an adjunct to the O'Hare System Safety and Efficiency Review report dated 9/15/88. These documents cite space, additional operational radar positions (facility maximum is 18 but guidelines indicate 24 are required today), and controller recruitment and retention as needs for a new facility.

Description of Solution: Provide \$1,700,000 for procurement of office equipment including furniture, electronics equipment, office automation, and office supplies. Also provide \$700,000 to maintain the ARTEMIS schedule, update program documentation, and monitor equipment deliveries.

Benefits: Relocation of this major TRACON facility will enhance safety and benefit the users through improved airspace utilization and increased capacity. It will reduce delays and enhance safety in the Great Lakes area. It will also provide the space, equipment, and enhancements needed to meet urgent operational requirements, improve quality of life, and provide the basis for the recruitment and retention of a qualified work force.

APPROPRIATION SUMMARY

	Locations	Amount (\$000)
Appropriated (FY 1982-1993)	---	\$70,600.0
FY 1994 Appropriated	---	18,200.0
FY 1995 Request	1	2,400.0
Future Requirement	---	0.0
Total	Various	\$91,200.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1 Headquarters Procured Equipment and Services	---	\$ 700.0
2 Regional Site Work	---	<u>1,700.0</u>
Total	1	\$2,400.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item	Title	Request	Locations	CFR Item(s)
2B07	ARTS IIIE Upgrades for Selected Air Traffic Facilities	\$10,000,000	Various	32-04

Basis for Request: To upgrade terminal automation at new/expanded TRACONs - from the ARTS IIIA to ARTS IIIE configuration - to meet projected air traffic requirements until implementation of the advanced automation system (AAS).

Description of Problem: All FAA high density terminal radar approach control facilities (TRACONs), with the exception of the New York TRACON, are supported by the ARTS IIIA system. By the year 1995, some ARTS IIIA systems will be operating near or beyond rated capacity.

Description of Solution: Provide \$10,000,000 in FY 1995 for integrated logistic support and program management for the facilities receiving the ARTS IIIE upgrade.

Benefits: Installation and adaptation of ARTS IIIE hardware and software will overcome inherent design limitations in the ARTS IIIA that preclude further expansion (beyond that included with the Mode C Intruder (MCI) to meet ever increasing demands for additional target tracking and display abilities, and will enhance air safety and help alleviate traffic flow problems prior to the implementation of AAS. By contributing to an increase in the capacity and efficiency of the air traffic control system, this program will strengthen transportation's role in supporting economic growth.

APPROPRIATION SUMMARY

	Locations	Amount (\$000)
Appropriated (FY 1982-1993)	---	\$ 13,200.0
FY 1994 Appropriated	---	17,300.0
FY 1995 Request	---	10,000.0
Future Requirement	---	<u>21,100.0</u>
Total	Various	\$61,600.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost (\$000)
1. Interim Contractor Support	Various	\$ 2,400.0
2. NAILS	---	4,400.0
3. Program Management	---	2,300.0
4. Engineering Services	---	<u>900.0</u>
Total	Various	\$10,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Locations:</u>	<u>CIP Item:</u>
2B08	Remote Maintenance Monitoring System (RMMS) - Provide	\$10,000,000	Various	26-01

Basis for Request: This is a continuation of a multiyear program to establish the remote maintenance monitoring system (RMMS) in accordance with the requirements and design in the National Airspace System (NAS) specifications. Contracts were awarded in FY 1989 and FY 1990 for processor enhancements, maintenance data terminals, and applications software.

Description of Problem: Current maintenance procedures rely on frequent site visits to accomplish necessary preventive and corrective maintenance tasks. Under plans to consolidate the work force into centrally located centers, the level of resources demanded by the number and duration of site visits will not be available. Automated facility performance monitoring and control information will be provided from remote locations to the maintenance specialists at centrally located maintenance centers.

Description of Solution: Provide \$10,000,000 to continue production and installation of the hardware and enhancement of software that will enable NAS subsystems to be monitored and controlled from central locations throughout the NAS. The RMMS will allow the FAA to automate and centralize its maintenance operations. The funding will provide modifications to already deployed NAS subsystems for the addition of remote monitoring capabilities (such as radar and environmental systems), software connectivity of newly developed and retrofitted subsystems, and the establishment of GNAS and ARTCC maintenance control centers to centralize maintenance activities. Funding is required in FY 1995 for maintenance management system software (MMS) production, monitor and control software (MCS), ARTCC maintenance control centers (AMCC), and the retrofit of existing subsystems with RMM capability.

Benefits: The remote maintenance monitoring system will increase work force productivity, support work force consolidation, and improve the quality of services being provided by NAS facilities and equipment needed for air traffic control. Increased efficiencies in these areas will limit the number of airway facilities staff needed as the new NAS subsystems become operational. The commissioned retrofitted subsystems (ARSR-1/2, ARSR-3, ATCBI-5, and ILS) are continuing to produce benefits attributable to the RMM. This program will strengthen transportation's role in supporting economic growth.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$277,467.6
FY 1994 Appropriated	---	27,700.0
FY 1995 Request	---	10,000.0
Future Requirement	---	<u>12,800.0</u>
Total	Various	\$327,967.6

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. RMS Retrofits	---	\$500.0
2. Maintenance Control Center	---	2,500.0
3. MCS and MMS Software	---	2,500.0
4. FAA Technical Center OT&E	---	1,500.0
5. Program Management	---	<u>3,000.0</u>
Total	Various	\$10,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item:	Title:	Amount:	Locations:	CIP Dates:
2B09	Terminal Air Traffic Control Facilities -Replace	\$54,500,000	24	22-13, 42-14

Basis for Request: The FAA owns or leases over 400 control towers and must continually replace various tower facilities and equipment to provide an acceptable level of safe air traffic control service and to meet current and future operational requirements

Description of Problem: The increase in terminal air traffic activity has caused an expansion in services such as radar advisory service for aircraft operating under visual flight rules and special handling for noise abatement programs. Airport expansion has increased the distances from the control tower to outer aircraft movement areas creating blind viewing areas which require special handling by air traffic controllers. Many of the FAA's control tower facilities are 20-40 years old and there is an ongoing requirement to replace or modernize several facilities annually.

Description of Solution: Provide \$48,268,200 for final phase funding (construction, equipment purchases and equipment installation) for sites that were initially funded in FY 1992 and FY 1993. Provide \$6,231,000 Phase I funding for engineering studies, site selection, long lead time equipment purchases architectural and engineering work to be accomplished in FY 1995. The phased funding approach ensures that each project is planned and engineered effectively to meet current and future operational/technical requirements, and that adequate funds are programmed for construction and equipment procurements and installation at each site.

Benefits: Strategic location and adequate height and size of an airport traffic control tower will provide an efficient working environment and enable controllers to achieve an aerial view of the airport and see outer aircraft movement areas resulting in enhanced safety and increased capacity. This program will support the safety of our transportation system.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	93	\$436,024 6
FY 1994 Appropriated	0	0 0
FY 1995 Request	12 ¹	54,500 0
Future Requirement	---	2
Total	112	\$490,524 6

¹ Initial funding.

² Requirements are based on activity levels and local situations which are validated on a year to year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Replace Terminal Air Traffic Control Facilities	24	\$54,500.0

First phase funding for control tower facilities to be replaced in FY 1995:

<u>Missouri</u>	<u>Utah</u>			
St. Louis	Salt Lake City			
\$1,400,000	\$1,400,000			
<u>Alaska</u>	<u>Kansas</u>	<u>Ohio</u>	<u>Florida</u>	<u>California</u>
Merrill	Salina	Columbus	Ft. Lauderdale	Oakland
\$384,600	\$182,900	\$711,800	\$235,800	\$595,000
<u>Virginia</u>	<u>Washington</u>	<u>Texas</u>	<u>New Hampshire</u>	<u>Virginia</u>
Newport News	Everett	San Angelo	Manchester	Roanoke
\$196,000	\$287,400	\$204,800	\$283,500	\$350,000

Final funding for control tower facilities started in FY 1992

<u>Oregon</u>	<u>Oregon</u>
Klamath Falls	Portland
\$1,944,100	\$7,724,100

Final funding for control tower facilities started in FY 1993

<u>Kansas</u>	<u>Minnesota</u>	<u>Massachusetts</u>	<u>Utah</u>
Topeka	St. Paul	Worcester	Salt Lake City
\$2,497,300	\$3,476,200	\$1,408,000	\$7,677,200
<u>Arkansas</u>	<u>New York</u>	<u>Illinois</u>	<u>Texas</u>
Little Rock	Islip	Palwaukee	Dallas (Addison)
\$5,980,100	\$4,577,400	\$3,777,700	\$3,693,700
<u>Maine</u>	<u>Washington</u>		
Bangor	Moses Lake		
\$2,734,400	\$2,778,000		

Locations are not in priority order and are subject to changes based upon site evaluations

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item	Title	Request	Location	CIP Number
2B10	Air Traffic Control Tower (ATCT)/ TRACON Facilities - Improve	\$16,433,000	Various	42-13, 32-44, 46-16, 62-25

Basis for Request. The FAA must upgrade and improve various terminal facilities and equipment on a continuing basis to provide an acceptable level of safe service, and to meet current and future operational requirements

Description of Problem. In many cases, normal equipment and structures wear out rendering facilities obsolete or in need of improvements. During the time ATCT/TRACON facilities have been in service, many changes have taken place in operational or safety requirements and energy costs. This program is to ensure that there will be an orderly transition to the new configurations for relocated/replaced equipment and other systems that need to be relocated due to facility improvements. This program will also insure that the integration of these systems into the air traffic operations environment will have minimum impact to existing operations.

To transition to the automated and other relocated/replaced equipment configurations, it will be necessary to assess individual ATCT projects and facilities for compatibility with the proposed future tower cab and tower equipment room configurations, assist in performing human factors analyses for the most effective positioning of the air traffic controller display and control equipment via the airway facilities tower integration laboratory (AFTIL), assess and plan for temporary shelters and associated power, heating, and cooling for temporary electronic equipment space while present equipment rooms are being renovated.

The power and the heating ventilation and air conditioning (HVAC) at many of the towers receiving this equipment must be upgraded to handle both the new and old equipment during the in-service change-out. The transition of these projects to the new configurations is critical. There is no room for any more equipment in many towers, therefore, base buildings must be provided or expanded. High levels of safety, service, and efficiency in the air traffic operation must be maintained.

Description of the Solution. Provide \$10,361,930 to improve, repair and modernize ATCT/TRACON facilities which are not candidates for relocation or consolidation. Provide \$6,071,070 to initiate engineering and site preparation, and integration of the automated and relocated/replaced equipment into ATCTs/TRACONs, this also includes contractor support costs for NAS implementation.

Benefits. This effort will result in a smooth and orderly transition of CIP projects into FAA's air traffic control towers, minimizing disruption of the operating system. This will also improve the operational efficiency and environment of obsolete and deteriorated ATCT/TRACON facilities. This program will strengthen transportation's role in supporting economic growth.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$152,265.8
FY 1994 Appropriated	62	20,200.0
FY 1995 Request	87	16,433.0
Future Requirement	---	1
Total	Various	\$188,898.8

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1 Improve Air Traffic Control Facilities (National Projects)	6	\$3,355.0
2 Regional Projects	43	7,007.0
3 Initiate Engineering, Site Preparation, Integration and Transition Planning for Acceptance of Automated and Relocated/Replaced Equipment	---	6,071.0
Total	Various	\$16,433.0

¹ Requirements are based on activity levels and local situations that are validated on a year-to-year basis

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CFR Number:</u>
2B11	Emergency Transceivers - Replacement	\$3,000,000	Various	44-07

Basis for Request Provide portable emergency transceiver equipment for the air traffic control tower (ATCT) and terminal radar approach control (TRACON) facilities. Procure state-of-the-art, reliable, and supportable equipment to replace aging equipment currently in service. Portable transceivers are required for providing emergency communication capability in ATCTs and TRACONs.

Description of Problem: Ninety percent of the emergency transceivers currently in use at the ATCT and TRACON facilities are antiquated and obsolete tube-type equipment. The remaining 10 percent of the facility equipment does not meet current radio frequency interference requirements. It is essential that this communications equipment be replaced to provide safe air traffic control services that will significantly decrease both maintenance requirements and interference problems.

Description of Solution Provide \$3,000,000 to procure approximately 132 emergency transceivers for ATCT facilities. This effort ultimately will provide approximately 2,160 VHF and UHF transceivers for approximately 350 ATCT facilities and 150 TRACON facilities, and the related equipment, spares, and services.

Benefits This procurement will provide the Federal Aviation Administration the upgrade necessary to maintain emergency communications equipment for the ATCTs and TRACONs while reducing maintenance requirements and substantially decreasing radio interference problems. The reliability of communications between air traffic controllers and pilots as well as other controllers is vital to the safe operation of the air traffic control system. By contributing to the FAA communications network, this program will support the safety of our transportation system.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$0.0
FY 1994 Appropriated	---	3,000.0
FY 1995 Request	---	3,000.0
Future Requirement	---	<u>45,600.0</u>
Total	1	\$51,600.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Equipment and Services	Various	\$3,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item:	Title:	Request:	Locations:	CIP Item(s):
2B12	Terminal Voice Switch Replacement (TVSR)/Enhanced Terminal Voice Switch (ETVS)	\$15,500,000	31	22-12, 32-12

Basis for Request: Air traffic controllers in the terminal environment require a reliable voice switching capability to allow voice communication with aircraft through radios or voice communication with other ground based air traffic facilities through a telephone network. The integrated air traffic control terminal voice switch provides the means through which voice communication paths are selected and established

Description of Problem: Over 50 percent of the 456 voice switches in operation at air traffic terminals are leased obsolete electromechanical switches which were installed in the 1960s and 1970s. These switches must be replaced before the leases expire. More importantly, these switches should be replaced before they jeopardize the safe and efficient control of commercial and general aviation aircraft. Many of the systems currently installed are insupportable and replacement switches are mandatory to ensure continuation of effective control services. Replacement of these electromechanical switches with modern equipment will significantly improve the operational and maintenance aspects of terminal operations. The primary focus of the ETVS project is to replace aging ICSS analog switches (in excess of 15 years) that are expensive to maintain and are becoming difficult to support. The potential exists to include the expansion and back-up communication characteristics to meet growth requirements for metroplex control facilities (MCF's), local control facilities (LCF's), and TCCC remote TRACONs (T/RT).

Description of Solution: Provide \$15,500,000 in FY 1995, of which \$13,500,000 will be used to procure an additional 31 large systems and \$2,000,000 will be used for development and issuance of a solicitation package to support an estimated contract award in FY 1995 for the ETVS project.

Benefits: This procurement will provide the Federal Aviation Administration the capability to continue reliable voice communications in support of air traffic terminal operations. The reliability of communications between air traffic controllers and pilots as well as other controllers is vital to the safe operation of the air traffic control system. By providing an essential element of the FAA communications network, this program will support the safety of our transportation system.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	155	\$ 45,000.0
FY 1994 Appropriated	61	26,600.0
FY 1995 Request	31	15,500.0
Future Requirement	— ¹	131,500.0
Total	247	\$218,600.0

¹ ETVS quantities are being determined

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Centrally Procured Equipment and Services	31	\$12,100.0
2. Program Management	---	1,400.0
3. ETVS Acquisition Support	---	<u>2,000.0</u>
Total	31	\$15,500.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Location:</u>	<u>CIP Item(s):</u>
2B13	Radio Control Equipment (RCE) - Provide	\$9,600,000	Various	25-08

Basis for Request: This project replaces present radio signaling and tone control equipment and improves operational performance and reduces maintenance costs. The new control equipment will eliminate operational deficiencies and improve air-ground communications services. This equipment will be used for controlling radio assets at remote center air/ground communications facilities (RCAG), remote transmitter/receiver (RTR), and remote communications outlet (RCO) facilities.

Description of Problem: The existing tone control equipment incorporates obsolete tube/relay devices that have functional system deficiencies, such as push-to-talk keying delays, false transfers of equipment, no main/standby equipment status readback, improper impedance switching, and low unit reliability. The existing system is not transparent to user demands and reconfigurations, which leads to lowered productivity and inefficiency. The new equipment must meet current and future requirements of the Air Route Traffic Control Center (ARTCC), Terminal Radar Approach Control (TRACON) and Automated Flight Service Station (AFSS).

Description of Solution: Provide \$9,600,000 for procurement of RCE that is of a singular design, modular flexible, and expandable to meet current and future Capital Investment Plan (CIP) requirements for the ARTCC/RCAG, TRACON/RTR, and AFSS/RCO facilities. Current requirements will focus on replacing obsolete tube/relay and solid state/relay devices; future requirements will focus on ARTCC expansion needs, TRACON consolidation needs for radio control equipment. Future requirements will satisfy the interfaces with the Voice Switching and Control System (VSCS) equipment and radio interfaces at the RCAGs, RTRs, and RCOs. The requested funding will be used to continue procurement of a RCE which will be logistically supported and satisfy the existing requirement.

Benefits: This project will replace the present radio control equipment to improve operational performance and reduce operations and maintenance cost (\$65M). The reliability of communications between air traffic controllers and pilots as well as other controllers is vital to the safe operation of the air traffic control system. By contributing to the FAA communications network, this program will support the safety of our transportation system.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$231,700.0
FY 1994 Appropriated	---	14,900.0
FY 1995 Request	---	9,600.0
Future Requirement	---	<u>14,000.0</u>
Total	Various	\$270,200.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Equipment and Services	Various	\$9,600.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Request:	Locations:	CIP Memo:
2B14	Runway Status Light System	\$4,000,000	1	62-21

Basis for Request: Increases in runway incursion accidents such as in Detroit and Los Angeles which took 43 lives reinforce the requirement for automated monitoring and pilot alerts to prevent runway incursions. Boston's Logan International Airport consistently leads the nation in runway incursions caused by pilots entering the runway when it is unsafe.

Description of Problem: Runway incursions and surface errors continue to occur at congested airports, nowhere more so than Boston. Without some reduction in runway incursion events, operational changes will be needed which affect airport efficiency. Although ASDE-3 itself will improve safety, the controller must continuously monitor the radar to prevent runway incursions. There is no similar warning to pilots when the runway is "hot", meaning that another aircraft is on approach close to landing, on landing rollout, or taking off.

Description of Solution: Runway status lights provide safety benefits through alerting the pilot to unsafe conditions using airfield lighting. The runway status lights use the ASDE-3 as the surveillance sensor. Safety algorithms within the runway status light system provide a timely visual alert when the runway is in use. FY 1995 funding request of \$4,000,000 is for completion of the installation of the lights, trenching, cabling, and software documentation upgrades for each runway/taxiway intersection at Boston Logan, for the initiation of operation/suitability evaluations, and for the initiation of pilot/controller human factors study regarding concept acceptance and shared roles for safety responsibility.

Benefits: Improve safety of aircraft operations on the ground by warning of potential runway incursions. This lighting system will provide the pilot more control over surface safety. The system will also prevent runway incursions by automatically and rapidly providing visible status indications directly to the pilot and thereby provide a backup to controllers. This system will be able to prevent 60% of airport surface accidents and incidents.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	2,000.0
FY 1995 Request	---	4,000.0
Future Requirement	---	1
Total	Various	\$6,000.0

1 Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

F&E-91

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Cabling, Trenching, Lights, Software Documentation	---	\$3,700.0
2. Operation/Suitability Evaluations	---	200.0
3. Human Factors Study	---	100.0
Total	1	\$4,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Memo:</u>
2B15	Airport Surface Detection Equipment (ASDE) - Additional Establishment	\$7,000,000	Various	24-14

Basis for Request The original ASDE-3 program provided for the establishment of 30 ASDE-3 systems and three additional sensors to satisfy the requirement for three dual sensor systems. A contract was awarded in 1985 and an option was exercised in 1988 to provide the additional sensors. The FY 1993 appropriation provided for the acquisition of 7 additional ASDE-3 radar systems to be located at 6 sites and the FAA Technical Center.

Description of Problem The FY 1993 appropriation provided funding for equipment procurement; however, additional funding is required for site preparation.

Description of Solution Provide \$7,000,000 in FY 1995 for site preparation at the ASDE-3 sites added by the FY 1993 appropriation.

Benefits The ASDE program will provide positive surveillance and assist in expediting aircraft flow during restricted visibility conditions. This program will increase the safety of our transportation system. In addition, through decreased system delays, transportation's role in supporting economic growth will be strengthened, as will the linkage between transportation and environmental policy through savings in aviation fuel consumption.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	40	\$190,200.0
FY 1994 Appropriated	---	26,600.0
FY 1995 Request	---	7,000.0
Future Requirement	---	0.0
Total	40	\$223,800.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity/Task</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Site Preparation	Various	\$7,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item	Title	Amount	Location	CFR No.
2B16	ARTS IIA Mode C Intruder Capability and Video Compression	\$9,400,000	Various	32-06

Basis for Request. The expanded automated radar terminal system (ARTS) IIA capacity will provide the automation system capacity to meet air traffic and routine functional growth requirements until replaced by the advanced automation system (AAS). The expanded capacity will also include mode C intruder (MCI) functionality which expands conflict alert functions to include air traffic controller warnings of potential conflicts between aircraft under positive air traffic control (associated aircraft) and aircraft not under positive air traffic control (unassociated aircraft). Current conflict alert functionality requires both aircraft to be under positive air traffic control.

Description of Problem. Air traffic growth and routine automation system functionality growth has left the current ARTS IIA system with less than ten percent capacity reserve. The reserve cannot support MCI and is insufficient to accommodate processing and display of future air traffic growth and routine functional enhancements until ARTS IIA is replaced by the AAS. Air traffic growth has also resulted in an increase in potentially hazardous situations arising between controlled and uncontrolled aircraft.

Description of Solution. Provide \$9,400,000 to complete the procurement and installation of ARTS IIA hardware and software upgrades that will meet the automation system processing and display capacity growth requirements and incorporate MCI functionality of automatic conflict alerts for associated unassociated MCI aircraft pairs equipped with Mode C transponders.

Benefits. The expanded capacity will provide automation system service to the air traffic controller without system degradation in the face of increasing air traffic and system functionality growth. The implementation of MCI functionality will further assist the air traffic controller by expanding the conflict alert function and provide increased safety by avoiding potentially hazardous situations when an unassociated aircraft is projected to intrude into airspace of an associated aircraft.

APPROPRIATION SUMMARY

	Locations	Amount (\$000)
Appropriated (FY 1982-1993)	---	\$9,500.0
FY 1994 Appropriated	---	26,100.0
FY 1995 Request	---	9,400.0
Future Requirement	---	0.0
Total	Various	\$45,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1 MCI Software/Expand Capacity	---	\$8,200.0
2 Program Management	---	1,200.0
Total	Various	\$9,400.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Location:</u>	<u>CIP Item:</u>
2B17	Terminal Air Traffic Control Automation (TATCA)	\$13,000,000	Various	62-20

Basis for Request: The principal capacity constraint today is the arrival traffic management process whereby aircraft approaching from multiple directions are sequenced, merged, and spaced for landing. The TATCA program will enhance en route and terminal efficiency through airspace and runway utilization by providing fuel efficient and conflict free controller advisories.

Description of Problem: The aircraft traffic management process is accomplished with various teams of controllers in en route centers, approach control facilities, and airport towers. Inefficiencies in the process result in idle time on the runways that prevent utilization of their full capacity. The consequence is air traffic delays which increase aircraft operating costs and inconvenience passengers.

Description of Solution: The traffic management advisor (TMA) and the final approach spacing tool (FAST) are TATCA products being developed to help alleviate terminal traffic congestion and reduce delays. This is the second year of a multiyear program to equip selected major TRACON facilities and ARTCCs with TATCA equipment. Provide \$13,000,000 in FY 1995 to continue limited deployment of the TMA in selected Centers and to begin limited deployment of FAST at selected TRACON facilities.

This request would procure both the hardware and software, documentation, training, maintenance, and installation of TMA at six to 10 ARTCCs and FAST at five TRACON facilities. The TMA and FAST units will be configured to accommodate the runway configurations, procedures, and software configurations unique to each specific site.

Benefits: The TATCA program has been developed to meet projected demand growth by increasing the throughput capability of ARTCC and TRACON facilities at several large, busy airports. By contributing to an increase in the capacity and efficiency of the air traffic control system, this program will strengthen transportation's role in supporting the economy. These enhancements will help to decrease system delays which will save aviation fuel, thereby strengthening the linkage between transportation and environmental policy. These tools are expected to increase capacity and therefore have the potential to reduce delays. TMA and DA will be deployed at ten Centers, with FAST going to five TRACONs.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	8,650.0
FY 1995 Request	---	13,000.0
Future Requirement	---	<u>18,000.0</u>
Total	Various	\$39,650.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1 Hardware/Software Procurement (TMA)	---	\$7,375.0
2 Hardware/Software Procurement (FAST)	---	3,155.0
3 Training	---	1,000.0
4 Installation (TMA)	10	1,030.0
5 Installation (FAST)	<u>5</u>	<u>440.0</u>
Total	Various	\$13,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2B18	Terminal Radar (ASR) - Improve	\$3,898,000	Various	44-60, 46-16

Basis for Request: The airport surveillance radar systems provide the means for determining aircraft positions approaching, departing, and passing through terminal areas.

Description of Problem: The terminal radar surveillance systems at various locations need minor improvements and/or modifications that include state-of-the-art changes or relocations to correct deficiencies. In addition, support must be provided to solve systems operation problems.

Description of Solution: Provide \$1,898,000 for necessary improvements and support to solve terminal radar facility operational problems and \$2,000,000 to continue digital charting efforts.

Benefits: This is a collection of improvement projects required to keep the National Airspace System facilities efficient and up-to-date. The projects are mainly for correction of site specific problems or deficiencies. This program will contribute to providing controllers with this information, and thereby will support the safety of our transportation system.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$71,121.8
FY 1994 Appropriated	---	9,395.0
FY 1995 Request	---	3,898.0
Future Requirement	---	---
Total	Various	\$84,414.8

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Provide Radar Remoting	---	71.0
2. Digital Charting	---	2,000.0
3. Terminal Radar In-Service Engineering	---	1,827.0
Total	Various	\$3,898.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item	Title	Request	Locations	CIP Item(s)
2B19	Dallas/Fort Worth Metroplex Program	\$5,500,000	1	32-22

Basis for Request: The Dallas/Fort Worth Metroplex air traffic system plan has been developed to meet the current airport activity and forecasted air traffic growth over the next two decades.

Description of Problem The existing air traffic control system was designed in the late 1960's and has provided adequate air traffic service in the past. The increased volume of traffic, coupled with the operational complexity of the airspace encompassing the Dallas/Fort Worth area, has placed constraints on efficient air traffic control operations.

Description of Solution The FY 1995 request is to provide \$5,500,000 to continue site preparation and equipment installation in the expanded TRACON, site preparation and equipment installation of voice switch to serve all three ATCTs and the expanded TRACON, site preparation for Mode S, and flight checks for terminal radars at the east/west ASR-9 facilities; and install new and/or replace interim engine generators at the offside and cornerpost VORTAC facilities and east ASR-9 facility.

Benefits Airport and airspace capacity will be increased and user delays will be reduced based on the major air traffic procedural changes planned as part of the overall Dallas/Fort Worth Metroplex program.

APPROPRIATION SUMMARY

	Locations	Amount (\$000)
Appropriated (FY 1982-1993)	---	\$132,133.1
FY 1994 Appropriated	---	13,300.0
FY 1995 Request	1	5,500.0
Future Requirement	---	15,000.0
Total	1	\$165,933.1

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost (\$000)
1. Headquarters Activities	---	\$1,111.0
2. Regional Site Work	1	4,389.0
Total	1	\$5,500.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item	Title	Amount	Location	CFR Item
2B20	Potomac Project Metroplex	\$2,800,000	1	32-34

Basis for Request: The air traffic control system in the metropolitan area is approaching system capacity in a number of major areas. It is clearly not prepared to meet the challenges that the next decade will present.

Description of Problem: Major deficiencies at the four Metropolitan facilities (Andrews AFB, Baltimore, Dulles, Washington) necessitate a continuing requirement to upgrade equipment, administrative space to accommodate traffic growth, and new technological advances while ongoing control operations are maintained. These facilities lack sufficient physical space, adequate power and heating, ventilating and air conditioning (HVAC) capability to accommodate anticipated growth while simultaneously effecting the transition from the current configuration to the AAS environment.

Description of Solution: Provide \$2,800,000 to support the efforts to establish the Potomac TRACON to enhance overall aviation safety and accommodate the anticipated growth of operations in the metropolitan Washington area. It will also adhere to fiscal responsibilities regarding future F&E project requirements necessary to support the expected increase in aviation activity in this area.

Benefits: System capacity will improve. Large volumes of aircraft currently operate continuously within the airspace system and further growth and expansion in capacity is closely linked to efficient operations.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	0.0
FY 1995 Request	1	2,800.0
Future Requirement	---	<u>140,800.0</u>
Total	1	\$143,600.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Regional Costs	---	\$ 800.0
2. Program Management/Engineering	---	<u>2,000.0</u>
Total	---	\$2,800.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item:	Title:	Amount:	Location:	CIP Item(s):
2B21	Northern California Metroplex	\$1,500,000	1	32-36

Basis for Request: The Northern California MCF program is part of the FAA's modernization strategy for limited facility consolidation of its mix of 22 en route centers and more than 200 terminal radar approach control (TRACON) facilities, including the Department of Defense (DOD) facilities. The Northern California MCF is one of several MCFs being established. These MCFs, operating in conjunction with the existing en route centers and stand alone TRACONs will provide safe and efficient national airspace management by optimizing the application of new technology.

Description of Problem: The infrastructure of the FAA's air traffic control system in the northern California area requires modernization and expansion to meet current and projected increased traffic demands. Air traffic increased by 100% in the area during the 1982-1992 time frame and operations are forecasted to increase by 19% from 1992-2000. To meet these demands, increased capability is required for automation capacity and facility space.

Description of Solution: Provide first year funding in the amount of \$1,500,000 for program initiation, advanced engineering, and site specific studies. These activities will accomplish the prerequisites to begin facility construction and equipment acquisitions to achieve an initial operational capability by the year 2000. The total estimated cost is \$156,000,000.

Benefits: FAA and user benefits are derived from the MCF establishment. FAA benefits include reduced operations and maintenance cost for consolidated facilities. User benefits include improved overall airspace management through reduced delays, circuitous routings, and a reduction in inefficient altitude assignments. User benefits to operators of aircraft and their passengers accrue through fuel and time savings resulting from more efficient airspace and route design.

APPROPRIATION SUMMARY

	Locations	Amount (\$000)
Appropriated (FY 1982-1993)	---	\$ 0 0
FY 1994 Appropriated	---	0 0
FY 1995 Request	---	1,500 0
Future Requirement	---	1
Total	Various	\$1,500 0

¹ Future requirements to be based on activity levels and local situations which will be validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Advanced Engineering	---	\$1,200.0
2. Program Support	---	<u>300.0</u>
Total	Various	<u>\$1,500.0</u>

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2B22	Atlanta Metroplex	\$1,500,000	1	32-38

Basis for Request The Atlanta MCF program is part of the FAA's modernization strategy for limited facility consolidation of its mix of 22 en route centers and more than 200 terminal radar approach control (TRACON) facilities, including the Department of Defense (DOD) facilities. The Atlanta MCF is one of several MCFs being established. These MCFs operating in conjunction with the existing en route centers and stand alone TRACONs will provide safe and efficient national airspace management by optimizing the application of new technology.

Description of Problem The infrastructure of the FAA's air traffic control system in the Atlanta and north Georgia area require modernization and expansion to meet current and projected increased traffic demands. The 1996 Olympics and the addition of a fifth runway will greatly increase air traffic activity in the Atlanta area with significant regional and national airspace management impacts. To meet these demands, increased capability is required for automation and system capacity, power conditioning systems, and facility space.

Description of Solution Provide first year funding in the amount of \$1,500,000 for program initiation, advanced engineering, and site specific studies. These activities will accomplish the prerequisite requirements to begin facility construction and equipment acquisitions to achieve an initial operational capability by the year 2000. The total estimated cost is \$123,000,000.

Benefits FAA and user benefits are derived from the MCF establishment. FAA benefits include reduced operations and maintenance costs for consolidated facilities. User benefits include improved overall airspace management through reduced delays, reduced circuitous routings, and reduced inefficient altitude assignments. User benefits to operators of aircraft and their passengers accrue through fuel and time savings resulting from more efficient airspace and route design.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0 0
FY 1994 Appropriated	---	0 0
FY 1995 Request	---	1,500 0
Future Requirement	---	1
Total	Various	\$1,500 0

¹ Future requirements to be based on activity levels and local situations which will be validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Advanced Engineering	---	\$1,200.0
2. Program Support	---	<u>300.0</u>
Total	Various	\$1,500.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Location:</u>	<u>CIP Item(s):</u>
2B23	Employee Safety for Airport Traffic Control Towers (ATCT)/OSHA Environmental Compliance Standards	\$31,300,000	Various	46-26, 46-24

Basis for Request: This funding is requested to bring ATCTs into compliance with employee fire life safety standards as required by Executive Order 12196, Occupational Safety and Health Program for Federal Employees. In addition, Environmental Protection Agency regulations require that asbestos be abated whenever it is disturbed as a result of construction. Compliance with these standards will eliminate conditions such as exposure to asbestos containing building materials (ACBM) and reduce the risk of fatalities or serious injuries in the event of fire.

Funding is also requested to ensure that the FAA is in compliance with applicable environmental and occupational health and safety (OSHA) regulations at all other FAA facilities.

Description of Problem: The Department of Labor, Occupational Safety and Health Administration (OSHA), requires FAA to bring ATCTs into compliance with FAA Order 3900.32 and 3910.5 for fire life safety. Fire safety deficiencies exist in approximately 90 percent of the ATCTs and ACBM exist in most ATCTs erected prior to 1978. Examples of fire safety deficiencies to be corrected are: insufficient smoke, fire alarm systems, unprotected exits, and improper type or quantity of fire extinguishers. ACBM will be affected at 30 percent of the facilities due to fire safety compliance projects. Asbestos abatement required to mitigate the hazards will be undertaken as part of fire safety projects.

Executive Order 12088, Federal Compliance and Pollution Standards, the Federal Facility Compliance Act, Public Law 91-856, the Occupational Safety Act, and an additional 32 Public Laws require Federal agencies to comply with all Federal, State, and local environmental regulations. The FAA does not provide adequate protection to FAA employees and the public from exposure to hazardous materials. While the FAA has the capability for cleanup of hazardous waste, there is no capability for waste minimization or prevention. Additionally, the FAA will not be able to comply with the Chlorofluorocarbon (CFC) Control Laws without the updated and new equipment needed to ensure compliance.

Description of the Solution: Provide \$14,300,000 to keep ATCTs in compliance with fire life safety corrections for employees and to eliminate the ACBM risks. This funding will allow the FAA to complete fire safety corrections at all ATCTs. All ATCTs will be surveyed for ACBM and mandatory actions taken. ACBM corrections and actions will continue through FY 1996.

Provide \$17,000,000 to conduct independent studies, site assessments and cost benefit analyses for identification of environmental and occupational compliance risk areas, provide for capability of detection for levels of environmental contamination and employee exposure levels, provide for management of hazardous material inventories, procedures, and related plans; provide for prevention and minimization of hazardous work environments and protection of workers in hazardous work environments, improve management of spills and identification of energy conservation opportunities.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Benefits: The \$14,300,000 will allow the FAA to comply with OSHA employee fire life safety requirements and to begin actions to eliminate asbestos exposure in all standard and non-standard ATCTs. Asbestos exposure can lead to the closing of critical facilities and should be considered a high priority requirement. This program will support the safety of our transportation system. The \$17,000,000 will ensure FAA compliance with OSHA and environmental laws at other FAA facilities.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$44,652.5
FY 1994 Appropriated	---	36,000.0
FY 1995 Request	---	31,300.0
Future Requirement	---	
Total	Various	\$111,952.5

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1 Correct Fire Life Safety Deficiencies in ATCTs	Various	\$ 14,300.0
2 Compliance with OSHA and Environmental Laws at Other FAA Facilities	Various	17,000.0
Total	Various	\$31,300.0

¹ Requirements are based on local situations which are validated on a year to year basis

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2B24	Terminal Communications - Improvement	\$2,677,000	Various	46-16

Basis for Request: The FAA must continually upgrade and improve various terminal communications facilities and equipment to satisfy operational requirements. Communications facilities, such as remote transmitter/receiver site, provide the means for continuous reliable air/ground communications for air traffic control service.

Description of Problem: Additional operating positions require both new communications equipment and additional flight data input/output devices in response to increased traffic and airspace realignments. Existing communications facilities must be improved, expanded, or relocated to assure continuation of high quality communications, which is essential to maintain an efficient air traffic control system.

Description of the Solution: This is a collection of improvement projects required to keep the national airspace system facilities efficient and up-to-date. Provide \$2,677,000 to establish automatic terminal information systems, establish 60 channel tape recorders, replace 20 channel tape recorders, establish or relocate remote transmitter/receiver (RTR) facilities, improve UHF communications, and provide in-service engineering to improve and maintain the air traffic control communications system.

Benefits: Air-to-ground and inter/intra facility communications are the most important single entity in the performance of air traffic control. The projects are for correction of site specific problems or deficiencies, airspace restructuring, site preparation, and terminal in-service engineering. The reliability of communications between air traffic controllers and pilots as well as other controllers is vital to the safe operation of the air traffic control system. By contributing to the FAA communications network, this program will support the safety of our transportation system.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$66,224.7
FY 1994 Appropriated	---	2,062.0
FY 1995 Request	---	2,677.0
Future Requirement	---	1
Total	Various	\$70,963.7

¹ Requirements are based on activity levels and local situations which are validated on a year to year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1 ATIS - Establish	5	\$ 66.0
2 60-Channel Tape Recorder - Establish	2	79.0
3 20-Channel Tape Recorders - Replace	3	122.0
4 RTR Facility - Establish/Relocate	1	1,122.0
5 UHF Communications - Improve	6	513.0
6 In-Service Engineering	---	775.0
Total	17	\$2,677.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CP Item#:</u>
2B25	Precision Runway Monitors	\$1,000,000	Various	64-27

Basis for Request Increasing airport capacity is an urgent FAA mission requirement. Immediate capacity increases can be realized with the installation of precision runway monitor (PRM) radars and displays. Three of the candidate airports having closely spaced (4,300-5,400 feet) parallel runway pairs have been validated as having positive cost benefits. Other airports having more closely spaced pairs of parallel runways also stand to benefit from the new radars.

Description of Problem Airports with parallel runways can use those runways simultaneously in visual conditions, but in instrument conditions, the runways cannot be used simultaneously unless they are at least 4,300 feet apart. Traffic volume could be increased if more timely and accurate radar surveillance data were available to the controller in bad weather.

Description of Solution In FY 1992, Congress appropriated \$35,000,000 for the procurement of five Electronically Scanned (E-Scan) PRM systems. The FY 1995 request of \$1,000,000 would provide program engineering support.

Benefits Approach landings at airports which currently have restricted use of their parallel runways are estimated to increase by as much as 44 percent during instrument meteorological conditions (IMC). Additional sensors will be installed at locations with the greatest potential benefit. By increasing the capacity and efficiency of the air traffic control system, this program will strengthen transportation's role in supporting the economy. These enhancements will help to decrease system delays thereby saving aviation fuel and strengthening the linkage between transportation and environmental policy.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	6	\$ 97,404 0
FY 1994 Appropriated	---	22,000 0
FY 1995 Request	---	1,000 0
Future Requirement	---	14,900 0
Total	6	\$135,304 0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity/ Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Engineering Support	---	\$1,000 0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Amount:	Location:	CF Item:
2B26	Southern California Metroplex Control Facility (MCF)	\$17,000,000	Various	32-26

Basis for Request: Based upon the Department's decision to pursue a limited consolidation strategy, the Southern California Metroplex Control Facility requires an advanced automation system.

Description of Problem: The Communication system must be upgraded to receive the terminal advanced automation system (TAAS). Therefore, a voice switching and control system (VSCS) will be procured and installed. In addition, the Southern California facility requires site preparation to receive the VSCS.

Description of Solution: Provide \$17,000,000 to procure and install a VSCS and perform necessary site preparation for VSCS. To procure, install, and begin providing system support and training for VSCS, it will cost \$16,000,000. For site preparation, power panels, and distribution frames required to install VSCS at the site it will cost \$1,000,000.

Benefits: The advanced automation initiative will allow restructuring of airspace will result in more direct terminal routing and fuel efficient flight profiles in the airspace controlled by the Southern California MCF.

APPROPRIATION SUMMARY

	Locations	Amount (\$000)
Appropriated (FY 1982-1993)	6	\$112,700.0
FY 1994 Appropriated	---	1,000.0
FY 1995 Request	---	17,000.0
Future Requirement	---	31,600.0
Total	6	\$162,300.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost (\$000)
1 Prime Contract	---	\$ 16,000.0
2 Implementation Support	---	1,000.0
Total	Various	\$17,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item:</u>
2B27	New Austin Airport at Bergstrom	\$20,000,000	Various	32-XX

Basis for Request: The City of Austin, TX, is constructing a new air carrier airport at the former Bergstrom Air Force Base (AFB), which was closed on September 30, 1993. The new airport at Bergstrom will replace the existing Robert Mueller Municipal Airport and is scheduled to open on October 1, 1998. FAA is required to provide all necessary air traffic control capabilities on the opening date of the new airport.

Description of Problem: Robert Mueller Municipal Airport is surrounded by urban growth and cannot be expanded. This has precluded the economical development of runway and airport capacity to meet the community's long term aviation demand.

Description of Solution: The FY 1995 request is to provide \$20,000,000 to establish the air traffic control infrastructure for the new airport. The services required include a new ATCT/TRACON, terminal radar/automation/communications/navigation systems, approach and landing aids for the two runways (both ends), cable loop, and ancillary equipment. The Robert Mueller Municipal Airport structures will be removed and the land-use will be converted to other purposes.

Benefits: The new Austin Airport will provide considerably increased airport capacity, growth capability, and enable improved aircraft operations due to the availability of two air carrier runways to accommodate dual parallel instrument approaches during IFR conditions. The new airport will include a 250,000 square foot passenger terminal building, initially with 24 aircraft gates, plus the essential ancillary facilities and services to ensure a fully functional airport complex for the region. Construction of the new airport has obviated the requirement previously mandated by a Texas State Law that the City of Austin must implement expensive environmental protective measures for the structures in the vicinity of Mueller Airport by the end of 1996.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)		\$ 0.0
FY 1994 Appropriated	---	800.0 ¹
FY 1995 Request	1	20,000.0
Future Requirement	---	44,000.0 ²
Total	1	\$64,800.0

¹ Included in DOD Base Closure - Facility Transfer budget item

² \$29,170,000 in future requirements included in the DOD Base Closure - Facility Transfer line item. The figures shown here reflect a preliminary but more accurate tabulation of future requirements and total program needs, which are currently being validated.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Equipment Acquisition	---	\$ 3,659.6
2. Site Construction/Installation	1	13,825.7
3. Program Management	---	<u>2,514.7</u>
Total	1	\$20,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Dates:</u>
2C01	Flight Service Station (FSS) - Modernization	\$8,000,000	Various	23-01, 43-04

Basis for Request: Approximately 74 non-automated flight service stations (FSSs) remain to be consolidated into automated flight service stations (AFSSs). Additionally, studies on flight service data processing systems (FSDPSs) and aviation weather processors (AWPs) hardware supportability, spare parts availability, and alternative supply sources indicate that key components will not be available or maintainable by FY 1999.

Description of Problem: Prior year appropriations were reprogrammed at Congressional direction in conjunction with appropriation of the FY 1993 budget. These funds were intended to consolidate existing FSSs into AFSSs. Funding will be necessary in FY 1995 to conclude the consolidation portion of this program. Previous funding deployed MIFCs in the AFSSs and consolidated approximately 248 FSSs. In addition, system hardware at the FSDPSs and AWPs will reach the end of their planned life in the FY 1999 time frame. Similar supportability and maintainability problems will be encountered for these two types of equipment as that presently affecting equipment at the AFSSs. No supply sources for spare parts will remain, and failure rates will continue to rise. The hardware is becoming maintenance intensive. Further operating system deficiencies, such as human-machine inefficiencies and system response time, impede the efficient utilization of personnel and equipment.

Description of Solution: Provide \$8,000,000 for Flight Service Station Modernization activities as specified below.

- a. Flight Service Station Consolidation (\$7,000,000) - complete the remaining consolidations of FSSs into AFSSs.
- b. FSAS Next Generation (NextGen) Computer Replacement (\$1,000,000) - fund requirements definition studies and specification and solicitation preparation for the follow-on system to the present FSDPSs and AWPs.

Benefits: Completing FSS consolidations will result in improved dissemination of aviation information and weather services, thereby improving flight safety and fuel savings. Supply supportability problems at FSDPSs and AWPs will be resolved through implementation of the NextGen program as a modern follow-on system. This program will strengthen transportation's role in supporting economic growth.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$368,100.0
FY 1994 Appropriated	---	8,800.0 ¹
FY 1995 Request	---	8,000.0
Future Requirement	---	<u>108,300.0</u>
Total	Various	\$493,200.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. FSS Consolidations	---	\$7,000.0
2. FSAS Next Generation	---	<u>1,000.0</u>
Total	Various	\$8,000.0

¹ The FSAS operational and supportability implementation system (OASIS) funding (\$1,800,000), previously contained in this FSS modernization budget item, is now reflected in the OASIS budget item.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2C02	Automated Surface Observing System (ASOS)	\$37,200,000	77	23-09

Basis for Request Accurate, reliable weather information is an integral element in the safe and efficient utilization of the nations airspace. The FAA is coordinating the automated surface observing system (ASOS) development and procurement efforts with the National Weather Service and is financially committed to funding the balance of this program as scheduled

Description of Problem There is a continuing need for weather observations at locations where existing flight service stations are scheduled to be consolidated or relocated to an automated flight service station (AFSS). Personnel assigned to these locations will be transferred and will not be available to continue manual weather observations. Continuation of manual weather observations using contract personnel is not cost effective. There is also a need to provide a 24 hour continuous update of the weather elements reported at towered airports which either do not report all the parameters ASOS is capable of or are staffed for less than 24 hours per day. Additionally, existing weather message formats from ASOS do not conform with current international standards.

Description of Solution. Provide \$33,200,000 to continue a multiyear program to procure and install 77 ASOS systems, and their related site preparation and program management costs. The National Oceanic and Atmospheric Administration (NOAA) will procure, install, and maintain this equipment at all locations. In addition, \$1,000,000 is required to continue funding of the conversion of the ASOS message format to conform with the international meteorological aviation reports (METARS). An additional \$3,000,000 is requested for automated thunderstorm detection and reporting.

Benefits The principal benefits to be realized from implementing ASOS are the continued capability for IFR flight operations and the improved continuous observation capability at a significantly reduced cost. ASOS will provide the user with high quality, real-time weather information by various means, including the use of computer-generated voice outputs and interface to national weather data communication networks. Weather parameters will be updated each minute to provide for rapid observation of changing weather conditions. Specific unique ASOS displays will be installed in control towers to keep air traffic personnel abreast of current weather. Based on the unit cost for ASOS and current cost of contract weather observations service, it is expected that FAA can recover ASOS procurement costs within two years.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	354	\$170,212 0
FY 1994 Appropriated	0	19,900 0
FY 1995 Request	77	37,200 0
Future Requirement	<u>106</u>	<u>17,000 0</u>
Total	537	\$244,312 0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1 ASOS Procurement (NWS)	77	\$28,380.0
2 VHF Radios	---	410.0
3 Program Office Support	---	4,410.0
4 Thunderstorm Detection	---	3,000.0
5 METARS	---	1,000.0
Total	77	\$37,200.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2C03	Wide Area Augmentation System (WAAS) for GPS	\$25,900,000	Various	64-05

Basis for Request In order for the FAA to exploit the benefits of the global positioning system (GPS) for civil aviation, the requisite accuracy, integrity, and availability must be assured. With this assurance, GPS may be used as a "sole-means" system for en route, terminal, non-precision, and Category I precision approaches in the national airspace system.

Description of Problem GPS does not provide the necessary integrity and availability for en route, terminal, non-precision, and Category I precision approaches, and does not provide the necessary accuracy for Category I precision approaches.

Description of Solution To make GPS fully usable for these phases of flight augmentation is required. The FAA initiated a program to develop a separate GPS ground system that will provide timely warnings of deficient signals (integrity), additional GPS-like signals to enhance coverage (availability), and differential corrective terms for CAT I precision approaches (accuracy).

This augmentation, referred to as wide area augmentation system (WAAS), will consist of multiple GPS signal monitors over North America that determine the integrity and accuracy of each visible GPS satellite. This GPS satellite data will be processed and broadcast via geostationary satellites in the form of a pseudo-GPS data transmission. The pseudo-GPS like signals from the geostationary satellites will also be usable as another satellite source for position determination.

Successful implementation of this project may make possible the decommissioning of several ground-based navigation aids including non-directional beacons (NDBs), very high frequency omnidirectional radio range (VORs), distance measuring equipment (DMEs), and Category I ILSs.

Provide \$25,900,000 to begin procurement of a WAAS system which will consist of six wide area system monitors, six wide area master stations, six leased ground earth stations, 6 leased geostationary satellites, 30 wide area reference stations, 30 Air Traffic wide area monitor displays, 30 Airway Facilities wide area monitor displays, 30 wide area integrity monitors, and associated software. The first procurement request will provide integrity by creating a wide area integrity broadcast (WIB). The WIB will consist of a software module and COTS hardware for the ground earth stations (GES's).

Benefits An en route, terminal, non-precision, and Category I precision approach capability based on satellite navigation systems will enhance NAS operations by enabling optimum routing, reducing traffic delays, increasing capacity and providing potential instrument approach services to every runway end in the NAS (approximately 12,000).

Additionally, significant government cost savings will be realized as existing ground-based navigation aids are decommissioned, and the requirements for new navigation systems are modified.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$3,700.0
FY 1994 Appropriated	---	0.0
FY 1995 Request	---	25,900.0
Future Requirement	---	
Total	Various	\$29,600.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Software/Equipment (WIB Software Modules and GESs)	Various	\$25,900.0

¹ Future year facility establishment requirements are in the process of being defined

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2C04	FSAS Operational and Supportability Implementation System (OASIS)	\$2,000,000	4	43-22

Basis for Request Studies on hardware supportability, spare part availability, and alternative actions showed that several key components at the AFSSs would become unavailable and unmaintainable by FY 1996 and at the flight service data processing system (FSDPS) by FY 1999

Description of Problem The existing system hardware has already passed its planned lifetime. The AFSS workstations and their supporting peripherals have the shortest remaining life. Suppliers who designed and built many chips and boards have left the business and no resupply sources exist. These designs are based on many subcomponents, which are experiencing high failure rates. The hardware requires constant maintenance attention to keep operational. Additionally, many deficiencies are present in the existing operational software. The operating system limitations, many human-machine inefficiencies, and system reliability and response times, preclude efficient personnel and equipment utilization.

Description of Solution Full implementation of OASIS will provide functional capabilities equivalent to existing AFSSs, with enhanced functionality to rectify operational deficiencies. The deployment to replace existing equipment at the AFSSs will be in FY 1996. The \$2,000,000 will provide funds to continue presolicitation activities.

Benefits This system will provide for ongoing logistical and operational support, enabling flight service specialists to more efficiently produce weather and flight information for pilots. By contributing to an increase in the capacity and efficiency of the air traffic control system, this program will strengthen transportation's role in supporting economic growth.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 1,800.0
FY 1994 Appropriated	0	1,000.0
FY 1995 Request	0	2,000.0
Future Requirement	<u>64</u>	<u>1</u>
Total	64	\$4,800.0

¹ Future requirements will be based upon the decision to exercise the production option.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Presolicitation Activities	---	\$2,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CFR Item(s):</u>
2C05	Flight Service Facilities Improvements	\$2,289,000	Various	46-16

Basis for Request Flight service facilities must be upgraded and improved on a continuing basis to provide the level of service required by users and to meet current and future operational requirements.

Description of Problem New equipment must be installed or existing facilities and equipment must be improved, expanded, or relocated to assure the continuance of high quality flight services

Description of Solution Provide \$2,289,000 for flight service station improvements such as redesigning and replacing consoles, adding color weather graphics and other minor improvements

Benefits This is a collection of improvement projects required to keep the National Airspace System facilities efficient and up to date. The projects are mainly for correction of site specific problems or deficiencies

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$23,988.2
FY 1994 Appropriated	---	3,426.0
FY 1995 Request	---	2,289.0
Future Requirement	---	---
Total	Various	\$29,703.2

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Improve FSS	---	\$ 538.0
2. Improve Consoles/Add Graphics	---	1,226.0
3. In-Service Engineering	---	525.0
Total	Various	\$2,289.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item	Title	Request	Locations	CFR (Funds)
2D01	Very High Frequency Omnidirectional Radio Range (VOR) With Distance Measuring Equipment (DME)	\$623,000	5	24-03, 44-14

Basis for Request: VOR, DME, and VORTAC facilities are major components of the air navigation system and are used for en route air navigation and approach by pilots to conduct safe and efficient flights and landings

Description of Problem: Enhancements are required to ensure that VOR/DME and VORTAC facilities are able to function as intended. Enhancements include: conversion of conventional VORs at restricted sites to Doppler VOR configuration, relocate VOR/DME, and various site specific efforts

Description of Solution: Provide \$623,000 for five VOR/DME relocations.

Benefits: These projects form a modern, cost-effective, national navigation network which provides required coverage through replacement, relocation, conversion, and establishment of VORTAC, VOR/DME, and VHF Omnidirection Range Test. The projects will improve operations and facilities performance, provide added capabilities and promote safety. By contributing to an increase in the capacity and efficiency of the air traffic control system, this program will strengthen transportation's role in supporting economic growth

APPROPRIATION SUMMARY

	Locations	Amount (\$000)
Appropriated (FY 1982-1993)	---	\$194,915.3
FY 1994 Appropriated	---	9,000.0
FY 1995 Request	---	623.0
Future Requirement	---	1
Total	Various	\$204,538.3

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost (\$000)
VOR/DME Relocations	5	\$ 623.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Range:</u>
2D02	Approach Lighting System Improvement Program (ALSIP)	\$2,000,000	0	24-10, 44-33

Basis for Request: Many of the current FAA approach lighting facilities lack energy-efficient components and utilize rigid structural steel approach light towers for the required lighting plane.

Description of Problem: The existing steel approach light towers are rigid and can severely damage aircraft in the event of an impact. Replacing existing towers with lightweight, frangible materials that collapse or break apart upon impact will reduce aircraft damage if impact occurs during departure or landing. Many of the approach lighting systems also contain electrical components which are not energy efficient and require replacement.

Description of Solution: Provide \$2,000,000 to install previously procured equipment at nine locations.

Benefits: Lightweight, frangible approach-light towers will help reduce the severity of accidents and will standardize the design of approach lighting systems (ALS) used at airports. Additionally, replacing electrical equipment at existing high-intensity ALS facilities serving Category I runways with MALSRs will result in reduced energy consumption. This program will increase capacity and safety and decrease delays and diverted and canceled flights. The increased capacity which the program will provide will strengthen transportation's role in supporting economic growth. The linkage between transportation and environmental policy will be strengthened by contributing to aviation fuel savings via decreased delays. Intermodalism will be fostered by reducing the number of canceled or diverted flights which ensures that passengers and cargo arrive as scheduled to link-up with other modes of transportation. This program will also support the safety of our transportation system.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	321	\$122,658.9
FY 1994 Appropriated	3	1,700.0
FY 1995 Request	0	2,000.0
Future Requirement	---	---
Total	Various	\$126,358.9

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Deferred Installations	9	2,000 0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Request:	Locations:	CFR Number:
2D03	ILS - Replace Mark 1A, 1B, and 1C	\$6,000,000	Various	44-22

Basis for Request: The Federal Aviation Administration (FAA) has the statutory authority to establish, operate, and maintain the precision landing capability at qualified airports within federally controlled airspace. The precision landing capability is a critical component of all-weather aviation system because this capability allows aircraft to approach and land during adverse weather conditions. In order to provide the precision landing capability to aircraft, the position and range of the aircraft relative to the runway must be calculated, precise three-dimensional approach and landing guidance information must be determined, and visual aids, which provide the pilot a visual reference to the runway, must be employed. This precision capability is principally provided by the instrument landing system (ILS).

Description of Problem: Contained within the current ILS operational inventory are approximately 180 older CAT I Mark 1A, 1B, and 1C ILSs which have been in service since the 1970s and are nearing the end of their life-cycles. Their reliability is degrading as the equipment ages beyond its designed life. Few off-the-shelf sources of replacement parts exist to support these systems (in particular the Mark 1As) since the ILS equipment manufacturers have ceased to construct parts conforming to 20+ year old transistor technology, and as a result, replacement parts are difficult to obtain. These systems are not equipped with remote maintenance monitoring and accordingly do not comply with the FAA maintenance requirements and policies.

Description of Solution: The funds requested in FY 1994 would begin a service life extension plan (SLEP) to modernize the remaining Mark 1As, 1Bs and 1Cs. Provide \$6,000,000 in FY 1995 to begin the installation of SLEP components.

Benefits: Continuing effective ILS operation at those qualified locations will satisfy the requirement for a precision approach capability, and relieve airports facing capacity problems. The benefit of this SLEP is to provide supportable and maintainable Mark 1Bs and 1Cs while substantially reducing the cost of a total replacement program. Using this SLEP approach, the program savings are estimated to be \$63,100,000 versus replacing in total all Mark 1Bs and 1Cs. This program will increase capacity and safety, and decrease delays and diverted and canceled flights. The increased capacity which the program will provide will strengthen transportation's role in supporting economic growth. The linkage between transportation and environmental policy will be strengthened by contributing to aviation fuel savings via decreased delays. Intermodalism will be fostered by reducing the number of canceled or diverted flights which ensures that passengers and cargo arrive as scheduled to link-up with other modes of transportation. This program will also support the safety of our transportation system.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	27	\$13,500.0
FY 1994 Appropriated	---	20,000.0
FY 1995 Request	---	6,000.0
Future Requirement	---	<u>7,500.0</u>
Total	Various	\$47,000.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations</u> <u>Quantity</u>	<u>Estimated Cost</u> <u>(\$000)</u>
Upgrade ILS	Various	\$6,000.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Request:	Locations:	CIP Item:
2D04	Instrument Landing System (ILS) - Establish	\$18,600,000	8	34-06

Basis for Request: The Federal Aviation Administration has the statutory authority to establish, operate, and maintain the precision landing capability at qualified airports within federally controlled airspace. The precision landing capability is a critical component of all-weather aviation system because this capability provides the means to allow aircraft to approach and land during adverse weather conditions. In order to provide the precision landing capability to aircraft, the position and range of the aircraft relative to the runway must be calculated, precise three-dimensional approach and landing guidance information must be determined and visual aids which provide the pilot a visual reference to the runway must be employed.

Description of Problem: The ILS establishment program was terminated in 1982 when the microwave landing system was adopted as the precision landing system for the National Airspace System beyond the year 2000. However, the FAA determined that there was an immediate need for precision approach systems at large and medium hub airports and their associated reliever airports as an interim solution prior to MLS implementation. The FAA MLS Transition Policy permits limited ILS establishments pending a precision landing system decision.

Description of Solution: Provide \$18,600,000 to procure 6 CAT III and 2 CAT I (total of 8) modern supportable ILSs and associated equipment as detailed below. Installation costs have been partially deferred to FY 1996 and FY 1997. Funds for FY 1996 and FY 1997 are for installation only for systems procured FY 1993 through FY 1995.

Benefits: Establishment of ILSs and associated equipment at qualified locations will satisfy requirements for precision approach capability, and relieve airports facing capacity problems. [Associated equipment may include medium intensity approach lighting system with RAIL (MALSR), distance measuring equipment (DME), runway visual range (RVR), and approach lighting system with sequence flashers (ALSF-2)]. This program will increase capacity and safety and decrease delays and diverted and canceled flights.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$91,226.8
FY 1994 Appropriated	---	36,174.0
FY 1995 Request	8	18,600.0
Future Requirement	---	1
Total	Various	\$146,000.8

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1 CAT I w/MALSR	1	\$ 809.0
2 CAT I w/DME/MALSR	1	1,012.0
3 CAT III w/ALSF-2	3	7,910.0
4 CAT III w/ALSF-2/RVR	1	2,741.0
5 CAT III w/ALSF-2/DME	1	2,984.0
6 CAT III w/ALSF-2/DME/RVR	1	2,979.0
7 Partial ILS		<u>165.0</u>
Total	Various	\$18,600.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2D05	Visual Navaids - Establish/Expand	\$2,565,000	23	34-09, 24-09

Basis for Request: Visual navaids such as precision approach path indicator (PAPI) systems will furnish the pilot with visual approach slope information to provide guidance for safe descent. Runway-end identification lights (REIL) enable pilots to make stabilized descent and approach-slope clearance over obstructions and quickly identify the runway threshold without instruments aboard their aircraft.

Description of Problem: A pilot's visual identification of the location of the approach end of the runway can be obscured, distracted, or confused by a variety of environmental conditions. Some of these conditions are caused by high ambient light conditions, such as brightly lighted freeways or boulevards which look like runways, or highly lighted residential, industrial, or shopping areas which overwhelm the lighting of the approach end of the runway. PAPIs provide visual approach slope information for use during the visual flight rule (VFR) weather conditions.

Description of Solution: Provide \$2,565,000 to establish PAPIs and REILs, convert to omnidirectional REILs, and for additional facilities for straight-in nonprecision approaches (NPA's).

Benefits: The precision path indicators (PAPI) and runway end indicator approach lights (REIL) enhance safety and regularity of operations during landing operations. This program will increase capacity and safety and decrease delays and diverted and canceled flights. The increased capacity will strengthen transportation's role in supporting economic growth. The linkage between transportation and environmental policy will be strengthened by contributing to aviation fuel savings via decreased delays. Intermodalism will be fostered by reducing the number of canceled or diverted flights which ensures that passengers and cargo arrive as scheduled to link-up with other modes of transportation. This program will also support the safety of our transportation system.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$154,263.0
FY 1994 Appropriated	34	6,310.0
FY 1995 Request	23	2,565.0
Future Requirement	---	1
Total	Various	\$163,138.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Establish PAPI	7	\$ 554.0
2. Add PAPI for NPA's	7	993.0
3. REIL	6	552.0
4. Convert to Omnidirectional REIL	<u>3</u>	<u>466.0</u>
Total	23	\$2,565.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Request:	Locations:	CIP (Funds):
2D06	Runway Visual Range (RVR) - Establish	\$2,500,000	Various	34-08

Basis for Request: Runway Visual Range (RVR) equipment provides a standardized, instantaneous, and accurate method of measuring actual meteorological visibility of precision landing system equipped runways.

Description of Problem: There are various locations that meet the agency's criteria for establishment of RVR facilities and have a benefit/cost ratio of 1.0 or greater. Replacement systems will provide full CAT-II/III performance which is not currently available.

Description of Solution: Provide \$2,500,000 for RVR installation at 3 locations. Funding is for site preparation and installation, sustaining program engineering needs, funding hardware/software enhancements and continuing contractor support. Systems for these locations have already been procured.

Benefits: Facilities having runways equipped with precision landing system equipment will show significant improvement in detection of runway visibility. This system will provide pilots important meteorological information prior to reaching a precision approach decision point for completion of landing or for departure. This program will assist in increasing capacity and decreasing delays and diverted and canceled flights. The increased capacity which the program will aid in providing will strengthen transportation's role in supporting economic growth. The linkage between transportation and environmental policy will be strengthened by contributing to aviation fuel savings via decreased delays. Intermodalism will be fostered by reducing the number of canceled or diverted flights which ensures that passengers and cargo arrive as scheduled to link-up with other modes of transportation.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	528	\$58,721.3
FY 1994 Appropriated	---	3,000.0
FY 1995 Request	3	2,500.0
Future Requirement	---	1
Total	Various	\$64,221.3

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Install RVR Facilities	Various	\$2,500.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2D07	ILS - Replace Wilcox CAT II/III	\$11,600,000	9	44-21

Basis for Request: The Federal Aviation Administration (FAA) has the statutory authority to establish, operate, and maintain the precision landing capability at qualified airports within federally controlled airspace. The precision landing capability is a critical component of all-weather aviation system because this capability allows aircraft to approach and land during adverse weather conditions. In order to provide the precision landing capability to aircraft, the position and range of the aircraft relative to the runway must be calculated, precise three-dimensional approach and landing guidance information must be determined, and visual nav aids which provide the pilot a visual reference to the runway must be employed. This precision capability is principally provided by the Instrument Landing System (ILS).

Description of Problem: The existing Wilcox CAT II/III ILSs represent early 1970's technology. As such these systems are becoming more difficult to support. These systems operate at some of the nation's busiest airports. The lack of logistics/maintenance support and age of equipment, along with increased integrity and reliability needed for CAT II and CAT III operations, necessitates replacement of these systems.

Description of Solution: Provide \$11,600,000 to procure and install 9 Mark 20 ILS systems in 1995.

Benefits: Replacement of these ILS facilities with current state-of-the-art equipment will alleviate the logistic/maintenance support problems and provide for continued CAT-II/III operations at major airports.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	0.0
FY 1995 Request	9	11,600.0
Future Requirement	---	1
Total	Various	\$11,600.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Procure and Install ILSs	9	\$11,600.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2D08	Instrument Approach Procedures Automation (IAPA)	\$1,000,000	Various	56-23

Basis for Request: Terminal navigation aids used in the air traffic control system for instrument flight approaches require specialized procedures for each supported facility specifying courses, minimum altitudes, and ceiling and visibility minima which must be adhered to during flight under instrument conditions.

Description of Problem: Current manual development of these procedures cannot keep pace with the proliferation of new technological advances in air navigation capabilities. The IAPA Phase II acquisition provided workstations displaying digitized charts and terrain for most of the procedure specialists in each of the Flight Inspection Area Offices (FIAO). Additional workstations are required for supervisory specialists in the field offices and specialists in the regional flight procedure branches. The acquisition also provided for the initial digitization of required charts by the Phase II contractor, but did not make provisions for the national ocean service (NOS), the primary source of chart data, to be able to routinely update the sectional charts in digitized format. Both the IAPA program and the air traffic advanced automation system (AAS) require updated digitized sectional charts on a recurrent basis (every 56 days), but NOS lacks the facility/capability to do this. NOS will need to develop their own facility to digitize sectional charts or contract out the development of this capability.

Description of Solution: Provide \$800,000 for NOS funding needed to develop the capability to digitize sectional charts and \$200,000 to purchase additional workstations and associated equipment.

Benefits: The IAPA program reduces the time to develop a Standard Instrument Approach Procedure, increases safety through increased standardization, and provides continued support for the National Airspace System. Digitized chart updates maximize the benefits of automation, and the additional workstations maximize access to the system.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$11,215.2
FY 1994 Appropriated	---	0.0
FY 1995 Request	---	1,000.0
Future Requirement	---	<u>5,000.0</u>
Total	Various	\$17,215.2

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Start up costs for Sectional Chart Digitization; Procure and install additional Workstations	Various	\$1,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2D09	Gulf of Mexico Offshore Program	\$5,400,000	Various	64-17

Basis for Request: There is a critical need to extend coverage of the current VHF communications in the Gulf airspace and provide the necessary services to convert the Gulf airspace to an offshore control area rather than an oceanic sector. The improvements will provide for direct controller-pilot VHF voice communications in the entire Gulf airspace, as well as explore alternatives to reduce separation standards employed in this airspace to effect an increase in the capacity of the airspace.

Description of Problem: The need to improve communications for direct controller-pilot communication is critical. Improved communication for exchanged operational ATC messages between U.S. air traffic controllers and Mexican air traffic controllers for coordinating traffic management activities is needed. Currently, the aircraft that leave radar coverage are not tracked automatically for conformance to their flight plans, there are no conflict alerts, and there is no automatic exchange of flight plan (and other data) with neighboring Mexican air traffic facilities. The FAA is forced to apply oceanic separation standards rather than nonradar offshore separation standards which represents a severe capacity degradation. These restrictions cause significant delays during peak hours.

Description of Solution: Provide \$5,400,000 to establish an extended range VHF communications network and initiate the conversion of the oceanic sectors' airspace to an offshore control area and begin the engineering effort to improve surveillance and/or automation systems to allow for increased capacity.

Benefits: The benefits include greater safety and an increased system capacity for air traffic operations in the Gulf of Mexico.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 1,200.0
FY 1994 Appropriated	---	0.0
FY 1995 Request	---	5,400.0
Future Requirement	---	<u>9,100.0</u>
Total	Various	\$15,700.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Equipment and Services	Various	\$5,400.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2E01	Alaskan NAS Interfacility Communications Systems (ANICS)	\$5,000,000	Various	45-24

Basis for Request: The Alaskan national airspace system (NAS) interfacility communication system (ANICS) project provides satellite earth stations using leased transponders on communication satellites for operational communications circuits. The circuits to be covered are primarily those which are critical to provide air traffic service for the Alaskan Region. The system will also be used for general purpose interfacility communications and provide the flexibility to accommodate capital investment plan (CIP) requirements.

Description of Problem: The reliability and economy of Alaskan region NAS interfacility communications between FAA sites must be improved to meet FAA safety and CIP objectives. The reliability of the present single-thread leased satellite interfacility communications is declining with both the number and total duration of outages on critical communication and radar circuits nearly doubling each year since 1987. Extended outages result in the dangerous loss of critical air traffic control communications. With the increasing amount of Pacific Rim air traffic forecast for the next decade, this unreliable system is inadequate. The typical method of providing redundant communications is to lease alternate terrestrial communication routes. However, this alternative is not available in Alaska. Loss of the satellite, or its associated terrestrial links, will have extremely adverse impacts on ATC operations and air safety since it entails the sudden loss of radar and communications coverage with all aircraft under positive (radar reinforced) air traffic control. Recovery times from a major satellite or terrestrial-link failure may take hours, days, or even weeks depending on the severity and location of the outage. Problems that interrupt the present single-thread communications network have serious and life threatening implications within the ATC system.

Description of Solution: Provide \$5,000,000 to continue a multiyear project to provide in Alaska a system of redundant satellite earth stations using leased transponders on communication satellites. The FY 1995 funding will provide engineering site design, site preparation, and equipment for the remaining critical earth stations throughout the state of Alaska.

Benefits: ANICS will provide substantial improvement to reliability, performance, maintainability and capacity. ANICS will substantially reduce the annual cost of leased communications in the Alaskan region.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$41,500.0
FY 1994 Appropriated	---	9,000.0
FY 1995 Request	---	5,000.0
Future Requirement	---	26,500.0
Total	Various	\$82,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Equipment and Services	Various	\$5,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CFP Items:</u>
2E02	Fuel Storage Tank Replacement and Monitoring	\$10,500,000	Various	46-22

Basis for Request: Underground fuel storage tanks installed in the past do not meet newly established environmental standards and must be replaced and monitored.

Description of Problem: The Hazardous and Solid Waste Amendments of 1984 to the Clean Water and Solid Waste Disposal Act levied a requirement on owners of underground petroleum fuel storage tanks to notify local governments of such tanks and to monitor those tanks so that leaks can be detected before they reach ground water. Underground fuel storage tanks of the type FAA has installed in the past have a life expectancy of 15 years. The majority of those installed have been in place for 20 to 25 years. Double walled fiberglass replacement fuel tanks and permanent monitoring wells will be used to eliminate future problems. No detectors are required for existing tanks which are not replaced or repaired until required by EPA or state and/or local government municipalities.

Description of Solution: Provide \$10,500,000 to replace and monitor existing ground fuel storage tanks and replace leaking tanks. The FAA has inspected fuel storage tanks, removed and/or replaced tanks, and converted gasoline engine generators to propane. This effort will continue into the 21st century.

Benefits: The FAA will be in compliance with State and Federal regulations governing storage of fuel in underground storage tanks. This program will strengthen the linkage between transportation and environmental policy by mitigating damage to the environment.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 69,800.0
FY 1994 Appropriated	---	9,000.0
FY 1995 Request	---	10,500.0
Future Requirement	---	<u>115,600.0</u>
Total	Various	\$204,900.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Procurement of Tanks and Regional Site Work	Various	\$10,500.0

F&E-139

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item:	Title:	Request:	Locations:	CYF Item:
2E03	FAA Buildings and Equipment	\$11,645,000	Various	46-08, 46-16 26-08

Basis for Request: A majority of the structures housing and/or supporting electronic systems within the national airspace system (NAS) are over 20 years old and will be required beyond the year 2001.

Description of Problem: Many existing facilities were built during the 1940's and 1950's. At the time of construction, very little consideration was given to energy consumption, safety standards, or earthquake hazards. Increased power and fuel costs have generated the need to retrofit some structures and modify others. Additional modifications and refurbishment's are required to extend the service life of these structures to the year 2001 and beyond. Examples of these facilities include shelters for very high frequency omnidirectional ranges (VORs), radars, radar microwave links (RMLs), instrument landing systems (ILSs), engine generators, communication outlets, and other system facilities. Needed improvements include roofing, siding, insulation, updating heating and air-conditioning systems, replacing various operation and working equipment, and other projects designed to extend the service life of these structures.

Description of Solution: Provide \$10,500,000 to fund this ongoing program to extend the service life of structures used to house and support components of the national airspace system (NAS). Also \$1,145,000 is requested for regional projects.

Benefits: Major benefits are the extension of the service life of the buildings and equipment coupled with reductions in energy consumption.

APPROPRIATION SUMMARY

	Locations	Amount (\$000)
Appropriated (FY 1982-1993)	---	\$120,775.9
FY 1994 Appropriated	---	17,000.0
FY 1995 Request	---	11,645.0
Future Requirements	---	<u>308,400.0</u>
Total	Various	\$457,820.9

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

Activity Tasks	Locations/ Quantity	Estimated Cost (\$000)
1. Improve Structures	Various	\$10,500.0
2. Regional Projects	Various	<u>1,145.0</u>
Total	Various	\$11,645.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Location:</u>	<u>CIP Item(s):</u>
2E04	Electrical Power Systems - Sustain/Support	\$7,000,000	Various	26-07, 46-07

Basis for Request: Solid state electronics equipment being introduced into the national airspace system (NAS) requires stable power sources, free from surges, to provide reliable operations.

Description of Problem: Many FAA facilities, when constructed, did not require lightning and/or surge protection for the equipment because tube-type equipment operated at higher voltages and was not as susceptible to being damaged by the transient currents created by lightning or other disturbances. To protect the new electronic equipment, lightning and surge protection devices need to be installed in the buildings at the entry point of commercial power. Concurrently, it is necessary to provide improved bonding, shielding, and grounding for the new equipment.

Due to the age of the standby power equipment and the reduced power requirements associated with the solid state electronic equipment, the existing standby power equipment at most facilities needs to be modernized, overhauled, or in some cases, replaced with battery systems.

Description of Solution: Provide \$7,000,000 to fund this program to improve/replace the power sources for the equipment used in the NAS.

Benefits: This program ensures power availability and reduces operating costs and energy consumption of standby power systems at unmanned facilities.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$80,645.0
FY 1994 Appropriated	---	7,000.0
FY 1995 Request	---	7,000.0
Future Requirement	---	---
Total	Various	\$94,645.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Regional Site Work	Various	\$ 5,300.0
2. Washington Headquarters Procured Equipment and Services	---	<u>1,700.0</u>
Total	Various	\$7,000.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Request:	Locations:	CIP Item(s):
2E05	Air Navigational Aids and ATC Facilities (Local Projects)	\$6,000,000	Various	46-16

Basis for Request: Various local improvements are required to ensure the continued operation of air traffic control facilities and air navigational aids.

Description of Problem: Various local minor improvements, restorations, and alterations must be made to over 30,000 commissioned air navigation and air traffic control facilities throughout the United States. The following improvements are typical: (a) minor improvements to air traffic control positions in air traffic control towers or air route traffic control centers; (b) raising or relocating air/ground communications antennas to reduce frequency interference; (c) correcting fire hazards and improving security; and (d) correcting minor facility and equipment design deficiencies

Description of Solution: Provide \$6,000,000 for various improvement projects for which requirements often develop without advance notice but demand immediate action.

Benefits: This is a collection of improvement projects required to keep the national airspace system facilities efficient and up-to-date. The projects are mainly for correction of site specific problems and deficiencies.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$31,000.0
FY 1994 Appropriated	---	7,019.0
FY 1995 Request	---	6,000.0
Future Requirement	---	---
Total	Various	\$44,019.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Regional Site Work	Various	\$6,000.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Request:	Location:	CIP Item#:
2E06	Air Navigation Facility/ATC System Support Provide	\$9,000,000	Various	46-16

Basis for Request: Facility expansion providing essential air traffic services and associated system reliability requires technical assistance to support implementation.

Description of Problem: As air navigation/air traffic control systems are expanded, technical assistance is required to support system implementation and effectively respond to in-house engineering design and analysis problems of an urgent and unexpected nature. These support functions involve engineering services for: (a) the update or modification of production specifications for equipment procurement; (b) identification of key test equipment and logistics support requirements; (c) system standards for construction and installations; (d) improvements for maintainability and reliability; and (e) design of interface where several programs are involved.

Description of Solution: Provide \$9,000,000 for engineering, design, and analysis in order to expedite program completion, correct deficiencies, and provide interface design support during field implementation.

Benefits: The major benefit having the capability to meet unexpected demands for system improvements efficiently to provide associated system reliability with minimum impact on essential air traffic services.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$75,694.4
FY 1994 Appropriated	---	5,000.0
FY 1995 Request	---	9,000.0
Future Requirement	---	
Total	Various	\$89,694.4

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Services	Various	\$9,000.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item	Title	Request	Location	CIP Item(s)
2E07	Land/Easement Purchase for Existing Airway Facilities	\$1,500,000	Various	46-16

Basis for Request: The FAA analyzes each land lease to determine the comparative economic value of continued land lease versus land purchase. Land rights are purchased if it is cost effective and in the best interest of the Government.

Description of Problem: The FAA has been experiencing escalating land rental costs, particularly in areas in the vicinity of airports undergoing development. Land costs, and correspondingly land rentals, have been increasing faster than inflation in these areas. It is expected that some land rental costs will dramatically increase over the next five years as the economy recovers from the recession, unless action is taken to acquire permanent land rights. Analyses of each site indicate that the net present value cost of leasing the site is greater than the present value cost of purchasing the site. Therefore, we have instituted a program to purchase leased sites as leases expire.

Description of Solution: Provide \$1,500,000 to purchase permanent real estate rights for sites which economically qualify for purchase. This funding will eliminate land rental costs for those sites purchased and would prevent FAA from incurring relocations expense costs which become necessary as rental costs, keeping pace with escalating land values, force relocation, if relocation is operationally possible.

Benefits: The purchase of these sites ensures continued facility operations while avoiding the expense of site relocation, flight checking, and the associated costs of publicly notifying airmen of these relocations. Also, it avoids payment of future rentals at locations that have long-term occupancy potential. In addition, when FAA-owned real estate is no longer required, it is sold often at a higher price than when purchased, and the proceeds of the sale are returned to the Treasury.

APPROPRIATIONS SUMMARY

	Locations	Amount (\$000)
Appropriated (FY 1982-1993)	---	\$58,431.6
FY 1994 Appropriated	---	1,400.0
FY 1995 Request	---	1,500.0
Future Requirement	---	1
Total	Various	\$61,331.6

¹ Future requirements are based on local situations which are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Regional Facility Site Locations	Various	\$1,500.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item:	Title:	Request:	Locations:	CIP Item#:
2E08	Aircraft Related Equipment Program	\$6,000,000	Various	56-12

Basis for Request: The FAA has a statutory requirement to perform flight inspection of navigational aids in support of the National Airspace System (NAS) and the Department of Defense; support regulatory activities including research and development (R&D) related to airworthiness of airmen, aircraft, equipment, systems, new equipment and other advances in aviation technology, and provide training to maintain currency and proficiency of FAA aviation safety inspectors and test pilots. This support mandates the use of aircraft related equipment which is capable of meeting minimum mission support criteria.

Description of Problem:

Very High Frequency Communications Interference Canceler (\$735,000): The VHF radio system installed in the BE-300 and BAe-800 flight inspection aircraft is generating potentially hazardous interference. Acquisition and installation of VHF communication interference canceler systems is required to improve safety by avoiding reception problems with very high-frequency omnirange (VOR) navigation equipment. \$735,000 is requested to complete the second year of a multiyear program for which an additional \$1,750,000 will be required.

Upgrade BAe-800 Avionics and Flight Inspection System (\$2,200,000): The FAA obtained six BAe-800 aircraft from the U.S. Air Force. These aircraft lack certain avionics and flight inspection system capabilities necessary to fully perform the current FAA worldwide flight inspection mission. Funds are requested to procure and install microwave landing system (MLS), global positioning system (GPS), and LORAN C hardware and software; various other software changes and enhancements to the flight inspection computer; and cockpit control and display unit hardware and software. \$2,200,000 is requested to begin the multiyear project for which an additional \$9,800,000 will be required in future years.

Flight Inspection Systems Capability Enhancement (\$2,315,000): Existing flight inspection systems used by FAA do not have the capability to efficiently support a number of mission requirements and workload projections, and do not incorporate modern data handling, processing, storage, and reporting techniques to permit effective data analysis and access. Funds are requested to continue development and implementation of required flight inspection system enhancements, for which \$1,200,000 was requested in FY 1994, and \$8,985,000 will be required in the future to complete the \$12,500,000 multiyear project.

Controllable Oscilloscope System (\$750,000): Spectrum analysis and frequency interference investigation from the airborne flight inspection platform are a primary concern. The occurrence of interference is increasing and proficiency in operating the instruments required to pinpoint interference sources is crucial. Existing operating inefficiencies result in inconsistent analysis of navigation and surveillance systems in the NAS. Funds are requested to acquire and install controllable oscilloscope systems in flight inspection aircraft capable of interfacing with the current

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

spectrum analysis equipment, including software modifications required for computer interface.

Description of Solution: Provide \$6,000,000 to procure and install, enhance, and implement: (1) very high frequency communications interference canceler equipment in BE-300 and BAe-800 flight inspection aircraft; (2) BAe-800 aircraft avionics and flight inspection system; (3) flight inspection systems capability, and (4) controllable oscilloscope systems in flight inspection aircraft.

Benefits: This acquisition is part of a continuing multiyear plan to ensure that aircraft related equipment will be capable of meeting aircraft program mission needs. As this program provides broad based support to multiple programs, it contributes to achieving all five major administration themes.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$11,622.5
FY 1994 Appropriated	---	6,000.0
FY 1995 Request	---	6,000.0
Future Requirement	<u>Various</u>	<u>47,777.5</u>
Total	Various	\$71,400.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Procure and install aircraft related avionics equipment and flight inspection systems	Various	\$6,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Aircraft</u>	<u>CIP Item#:</u>
2E09	Aircraft Fleet Modernization	\$50,000,000	2	26-11, 56-11

Basis for Request: The FAA has statutory requirements to perform navigational aid flight inspection in support of the National Airspace System (NAS) and Department of Defense. This support mandates utilizing flight inspection aircraft which are capable of meeting minimum mission support criteria.

Description of Problem: The present flight inspection fleet includes aircraft with the average age of 22 years with some approaching 38 years since manufacture and require replacement. These aircraft are no longer in production, causing high operating costs, high maintenance costs, and unavailability of spare parts.

Description of Solution: The medium size/range (MSR) and large size/range (LSR) aircraft are needed to effectively accomplish replacement of older aircraft amid projected escalation in domestic flight inspection mission requirements. The acquisition of these aircraft is supported by the Federal Aviation Administration's aircraft program strategic plan for FY 1991 through FY 2000. Adequate flight inspection aircraft must be acquired to meet mission support requirements. Provide \$50,000,000 to acquire two flight inspection aircraft with fully installed and integrated flight inspection systems.

Benefits: This acquisition will modernize the FAA flight inspection fleet, which has responsibility for domestic and international testing and certification of flight procedures and navigation aids. International flight inspection responsibilities include U.S. military and civilian bases and foreign airfields, by intergovernmental agreement. Modernization of the fleet is necessary to test, evaluate, and certify advanced technology systems such as the ASR-9 radar, Global Positioning System (GPS), and LORAN-C. The current fleet aircraft are increasingly unreliable and in need of extensive upgrades, modifications, and general maintenance. Additionally, since the new aircraft will be more flight worthy and have longer range than the current aging and deteriorating fleet, flight crews would have reduced risk of accidents. As this program provides broad based support to multiple programs, it contributes to achieving all five major administration themes.

APPROPRIATION SUMMARY

	<u>Aircraft</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	24	\$211,700.0
FY 1994 Appropriated	0	0.0
FY 1995 Request	2	50,000.0
Future Requirement	<u>2</u>	<u>56,000.0</u>
Total	28	\$317,700.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Exercise Existing Option for 2 flight Inspection Aircraft Systems (1 MSR, 1 LSR), Spares, Technical Data, and Support	2	\$50,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item/s:</u>
2E10	Air Traffic Controller Chairs - Replace	\$1,000,000	Various	42-24

Basis for Request: The failure rate on controller chairs has become a national problem.

Description of Problem: Due to twenty-four hour per day use, the life of controller chairs is approximately five years. The current controller chairs were purchased in the early 1980's. They are beginning to require excessive repair which is becoming extremely labor intensive to airways facilities personnel.

Description of Solution: Provide \$1,000,000 to replace the operational position chairs in selected air traffic facilities.

Benefits: Replacement of the controller chairs will improve the safety and controller comfort in our air traffic facilities. It will also free the Airways Facilities maintenance personnel to perform their regular maintenance duties.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$4,500.0
FY 1994 Appropriated	---	0.0
FY 1995 Request	---	1,000.0
Future Requirement	---	1
Total	Various	\$5,500.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Purchase Chairs	Various	\$1,000.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item	Title	Request	Locations	CIP Item(s)
2E11	Airport Cable Loop Systems - Sustained Support	\$6,113,000	Various	26-05, 46-05, 46-16

Basis for Request: Existing airport cable configurations do not allow for redundant communications paths between airport facilities and towers. Order 6950.23A directs airway facilities to reconfigure cable configurations whenever possible into cable loop systems. Existing systems are being expanded and upgraded to new technology on an ongoing basis throughout the system. Funding under this program will allow the FAA comply with this order.

Description of Problem: Los Angeles airport is currently undergoing a major upgrade of all cable systems to enhance system reliability and safety. This includes replacing old and deteriorated cables and installing new fiber optic systems. St. Louis airport is undergoing a major expansion of the existing runway and cable systems. This requires relocation of existing cable systems. Reconfiguration of these systems into cable loop systems will provide additional benefits. Adequate funding has not been provided for these projects in previous budget years.

Supply support has not been provided due to lack of funding. This project will enable the FAA Academy and Logistics Center to initiate training and support programs for cable loop systems.

Description of Solution: Provide \$3,000,000 to continue Los Angeles, St. Louis, Bakersfield, Windsor Locks, and Oklahoma City, projects and initiate support practices at the Logistics Center and the Academy. Provide \$3,113,000 for regional originated projects.

Benefits: Training for fiber optic systems will be provided to FAA personnel. System reliability and safety will be enhanced due to reduced outages and increased system performance from multiple pathways provided by loop systems. Cable systems will be upgraded and the constraints of Order 6950.23A will be met.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$20,400.0
FY 1994 Appropriated	---	1,000.0
FY 1995 Request	---	6,113.0
Future Requirement	---	1
Total	Various	\$27,513.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Regional Site Work	Various	\$833.0
2. Regional Site Work	Los Angeles	550.0
3. Regional Site Work	St. Louis	1,100.0
4. Logistics Support	Oklahoma City	517.0
5. Regional Projects	<u>Various</u>	<u>3,113.0</u>
Total	Various	\$6,113.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
2E12	Computer Aided Engineering and Graphics (CAEG) Replacement	\$1,000,000	Various	56-70

Basis for Request. The basis for this request is to provide initial seed money to cover the expense of the acquisition process for the CAEG replacement program. The CAEG replacement system will provide uninterrupted support to continue to furnish the benefits reaped by its predecessor. Implementation of the Capital Investment Plan (CIP) requires modifications to many existing facility designs and the creation of a large number of new regional and national standard designs. The CAEG replacement system will provide an improved method in meeting the CIP's demand for new and revised topographic, electrical, electronic, architectural, mechanical, and construction engineering designs with a disproportionately small increase in staffing.

Description of Problem. The current problem is largely hardware related. The current commercial-off-the-shelf (COTS) hardware is beyond its useful life and cannot run the more sophisticated and more open software that is needed for today's operating environment. Workstation requirement demands outstrip workstation availability and there is no current vehicle for updating and adding additional hardware and software. The hardware is obsolete, spare parts are scarce, and repairs are expensive. It is expected that the hardware will be irreparable beyond the FY 1995 time frame.

Description of Solution. Provide \$1,000,000 to develop the specification, statement of work, source selection, and test and evaluation of the CAEG replacement.

Benefits. Maintaining the necessary level of support to the NAS implementation programs.

APPROPRIATIONS SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	1,500.0
FY 1995 Request	---	1,000.0
Future Requirement	---	<u>73,200.0</u>
Total	Various	\$75,700.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Specification Development, and Evaluation	---	\$1,000.0

F&E-154

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item	Title	Amount	Location	CIP Item
3A01	Automated Data Processing (ADP) Facilities Management (CORN)	\$20,600,000	12	56-28

Basis for Request: This request continues funding for the computer resources nucleus (CORN) project initially funded in the FY 1989 budget. Increased demands for general purpose host computer resources from operational and administrative programs within FAA have increased at a rate far exceeding available host capacity. The CORN project represents a technological investment in computing resources that promotes corporate-wide processing efficiency.

Description of Problem: The demand for general purpose host processing resources significantly exceeded the available capabilities. ADP management under the CORN program addresses this critical problem with the acquisition of consolidated ADP services from contractor-provided facilities, hardware, software, and staff. During the 10-year contract life, the contractor will be required to meet growing demands for service and to upgrade installed hardware and software to ensure that the most cost-effective technologies are applied to the FAA data processing needs. Some of the areas that have increased workloads that require additional host resources are:

- a. Airport Inspection and Certification
- b. Logistics and Inventory Systems
- c. Energy Management Reporting System
- d. Management of National Airspace Telecommunications
- e. DOT-wide Personnel, Accounting, and Payroll Systems
- f. Accident Investigation
- g. Aircraft Registration
- h. Airmen Certification

Description of Solution: Provide \$20,600,000 for: (1) software conversion of major applications from the old hosts to the new hosts; (2) parallel operations during the test and checkout of the new systems; (3) continuing operation costs for the contractor provided facility, equipment, staff support; and, (4) training for users of converted applications.

Benefits: The benefits of this funding are an upgraded and common system of ADP support for agency-wide use that allows for greater intermodalism and sharing of aviation safety data. The expansion of ADP capacity will be made available so that required service levels and productivity can be achieved. Other benefits include improved ADP service levels, maintained security levels, increased productivity, avoidance of lengthy procurement process, improved ADP cost-effectiveness, availability of latest technology, minimized risk to FAA, and providing the broadest competition.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$102,073.5
FY 1994 Appropriated	---	35,000.0
FY 1995 Request	12	20,600.0
Future Requirement	---	0.0
Total	12 ¹	<u>\$157,673.5</u>

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Software Conversion of Major Applications and Implementation	12	\$20,600.0

¹ The request for each year is for the same 12 locations.

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Request:	Locations:	CIP Item(s):
3A02	NAS Management Automation Program (NASMAP)	\$4,500,000	Various	56-56

Basis for Request: This request addresses a critical need within the Airway Facilities (AF) to integrate information across all AF program areas to use information technology to manage National Airspace System (NAS) related data and information processing systems efficiently and effectively. In order to perform these responsibilities successfully, management information program offices require the development of comprehensive and integrated information systems containing or providing a means of accessing the types of data. This request directly supports the implementation of AF's five year information technology plan.

Description of Problem: Present information technology capabilities are inadequate to provide management with access to the information needed within the FAA to effectively manage the systems in the NAS. The airway facilities divisions are relegated to using manual systems to facilitate planning, scheduling, and tracking of activities required to implement the program defined in the CIP through the year 2000. The impetus behind this major effort is AF's strategic plan.

Description of Solution: Provide \$4,500,000 to implement AF's detailed five year information technology plan. The plan addresses the establishment of an IT based infrastructure that supports the efficient and cost effective management of the agency's resources. The implementation of the plan results in the establishment of a national network, providing connectivity and communications capability to AF personnel engaged in the management and administration of the NAS program.

Benefits: Quicker and greater access to management data and more efficient use of the Agency's resources will result with the implementation of an integrated information infrastructure for AF. The effort will result in significant improvements to the accuracy, commonality, sharing and management of information as a critical resource. This is necessary in order to achieve sound management decisions, as well as the ability to conduct timely and meaningful analysis for the effective implementation and operation of the NAS. This program contributes to achieving all five major administration themes.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$32,100.0
FY 1994 Appropriated	---	4,000.0
FY 1995 Request	---	4,500.0
Future Requirement	---	<u>34,800.0</u>
Total	Various	\$75,400.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
National Configuration Analysis Implementation	Various	\$4,500.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Location:</u>	<u>CIP Item(s):</u>
3A03	Hazardous Materials Management	\$15,000,000	Various	46-23

Basis for Request: The FAA is required by Executive Order 12088 to comply with all Federal, State, interstate, and local pollution control statutes in the same manner and to the same degree as any other person or entity. The Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended, establish mandatory compliance schedules to identify and remediate environmentally contaminated sites. The Federal Facilities Compliance Act of 1992 waives sovereign immunity of Federal agencies for environmental violations and subjects agencies to liability for fines and other penalties imposed by Federal, State, and local environmental agencies. Other environmental statutes, delineated in 40 CFR, place requirements on hazardous materials handling, hazardous waste disposal, and waste minimization.

Description of Problem: Past FAA maintenance practices, although considered appropriate at the time, resulted in environmental contamination which must be cleaned up under current environmental laws. In 1988, the FAA began implementing a program in compliance with Federal regulations to identify and clean up environmental contamination at FAA facilities. The sites in question have been identified by internal reviews of past maintenance operations and releases at facilities, and notices of violations received from environmental regulatory entities. Federal and State laws mandate specific procedures and deadlines be followed from the moment contamination is identified until a site is decontaminated to the satisfaction of the regulatory entity. Since the beginning of the program, numerous site investigations have been performed which indicate the need for extensive long-term cleanup of environmental contamination from soil and ground waters at some FAA facilities. The investigations have indicated that contamination comes from a variety of hazardous substances, including fuels, solvents, herbicides, transformer oils (PCB's), and radioactive materials. A comprehensive program of Facility Environmental Evaluations began in FY 1993 and will continue into FY 1995 to better define the number and magnitude of hazardous waste problems at FAA facilities. In addition to addressing existing environmental contamination sites, this program has identified procedures for hazardous materials handling and hazardous waste disposal to prevent future environmental contamination and notices of violation.

Description of Solution: Fund \$15,000,000 for site investigations, hazardous waste handling and disposal, and waste minimization. This will include drilling of monitoring wells, remediation of ground water, physical removal of contaminated soils, proper disposal or incineration of hazardous wastes, implementation of air pollution controls as required, and investigation and implementation of waste minimization alternatives.

Benefits: This program supports Department initiatives to strengthen the linkage between Transportation and Environmental Policy by mitigating transportation-related environmental damages. Presently, several FAA facilities are under administrative consent orders to achieve environmental compliance within specified deadlines. Funding will allow these FAA facilities to achieve compliance with administrative consent orders and State and Federal pollution control regulations, thus forestalling further environmental

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

contamination. Additionally, the work funded will reduce FAA liabilities for fines and other civil penalties which may result from non-compliance with existing regulations.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 58,892.4
FY 1994 Appropriated	---	12,750.0
FY 1995 Request	---	15,000.0
Future Requirement	---	<u>74,057.6</u>
Total	Various	\$160,700.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Compliance with environmental remediation and pollution prevention requirements	Various	\$15,000.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Amount:	Location:	CIP Item#:
3A04	Aviation Safety Analysis System (ASAS)	\$15,392,000	Various	56-51

Basis for Request: To improve inspection, surveillance, certification and investigation programs and the safety mission through the development of an integrated automation system to capture safety related inspection data.

Description of Problem: Present automation hardware and software technology capabilities are inadequate to capture, disseminate, and analyze a wide range of safety related data. Most program managers, accident investigators, inspector personnel, support personnel, and others who need the information must use manual procedures that are antiquated and obsolete for planning, scheduling, capturing, and tracking work programs, investigation results, and safety information.

Description of Solution: Funding of \$15,392,000 would continue modernization of the current system, system design efforts, and purchase of hardware and software infrastructure requirements for ASAS information management and communication processes.

Benefits: This project will substantially improve the accuracy, commonality, and the sharing of ASAS and other aviation safety-related information. This program will support the safety of our transportation system.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 45,200.0
FY 1994 Appropriated	---	18,000.0
FY 1995 Request	---	15,392.0
Future Requirement	---	<u>129,008.0</u>
Total	Various	\$207,600.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity/Task</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Hardware/Software System		
Design/Maintenance	Various	\$15,392.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item:</u>
3A05	Operational Data Management System (ODMS)	\$5,000,000	Various	43-21

Basis for Request: This is the third year of a four year program to provide an initial operational data management system (ODMS). The current capability is composed of the United States Notices to Airmen (NOTAM) System (USNS), the aeronautical information system (AIS), and a data archiving function. The ODMS project will integrate the AIS and the USNS into one fully automated system that includes all the functions of the national flight data center (NFDC).

Description of Problem: The present methods used by the FAA to collect, validate, archive, and distribute operational data are seriously inadequate. Existing systems were developed in the late 1970s and are labor intensive, prone to data input error, consist of obsolete technology, and do not meet the operational needs of the National Airspace System (NAS) elements or the needs of the aviation user community. The AIS and USNS are initial elements of the ODMS which is expected to interface with the Advanced Automation System (AAS) and the Traffic Management Processor. The data being processed by these systems are critical to aviation safety and require quick and reliable dissemination to any/all users of the NAS.

Description of Solution: System requirements must be developed and defined to generate functional specifications for a global data repository and management system. The system provides for direct data input and validation by field operations offices and facilities which "own" the data. The system must be fully automated from the data sources to data delivery. This year's request will continue the development and integration of the database and application functions of the USNS and AIS into one ODMS. A design specification to provide communications hardware and software to link the ODMS from the source of data to destination of all aeronautical data for civil, military, and international users must be developed. The ODMS will be a repository of all static and operational data concerning the NAS.

Benefits: Collection, validation, archiving, and distribution of NAS operational data eliminates numerous, unconnected database management processes. Recurring costs for data generation and database maintenance will be eliminated. A single-source, validated database will enhance the system safety aspects of available aeronautical data by ensuring single-source, current, correct, and valid operational and aeronautical data.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	4,650.0
FY 1995 Request	---	5,000.0
Future Requirement	---	<u>8,000.0</u>
Total	Various	\$17,650.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Hardware	---	\$2,450.0
2. Software Development	---	1,100.0
3. Technical Support	---	625.0
4. Software and Software License	---	<u>825.0</u>
Total	Various	\$5,000.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item	Title	Request	Locations	CIF Memo
3A06	Child Care Facilities	\$4,400,000	Various	56-62

Basis for Request: Authorized in 1986, 40 U.S.C. (the Tribble Amendment) cleared the way for construction of child care centers. The amendment reflects Congressional intent to promote the morale and productivity of federal workers with resultant savings of tax dollars by permitting a greater availability of child care facilities. Additionally, OPM policy guidance encourages agencies to provide dependent care and other initiatives to assist employees in balancing their work and family needs. In response, over 75 federally-sponsored child care centers have been constructed across the country.

Research data indicates that child care program benefits outweigh the associated costs. As a result, the Department of Transportation fully support and emphasizes the establishment of child care centers for the children of DOT employees where the need exists. Under the leadership of the Administrator, the FAA continues to increase its efforts to establish on-site child care centers. FAA believes that the provision of child care centers at locations where proven need and employee/management support exist is vital to fulfilling the agency's mission.

Description of Problem: Attracting and retaining a highly skilled technical work force is a continuous challenge for the FAA. Funding high quality, affordable child care, available during unusual work hours, is becoming increasingly difficult for employees. Available on-site child care greatly enhances FAA's ability to recruit and retain highly qualified employees in the technical specializations which are required. The construction of child care centers at air route traffic control centers (ARTCCs) is considered essential because of the need for FAA to not only compete with the private sector for highly qualified employees in the shrinking technical workforce but also to compete to retain these employees. Projections of work force demographics estimate that by the year 2000, women are expected to participate in the labor force in the same percentage as men and ninety percent of these women will be of child-bearing age. This will create a demand for child care which the projected community and private child care facilities will not be able to handle. This becomes especially critical for the employee population in the air traffic control and related occupations.

Description of Solution: It is anticipated that in order to implement the DOT and FAA program initiatives and meet the demand for on-site child care for employees through the next several years, it will be necessary for FAA to construct up to four child care centers per fiscal year at large and mid-size ARTCCs nationwide.

Benefits: On-site child care centers at ARTCCs and the Technical center constructed, furnished, and maintained as necessary to provide for the ongoing, growing needs of employees will enhance the ability of the FAA to recruit and retain the highly specialized technical workforce required at these locations to ensure the continued successful, safe, and efficient operation of the airspace system throughout the 1990s and beyond. Upon completion, the child care centers are managed as non-profit corporations by Boards of Directors consisting of agency employees/parents. Tuitions and fundraising efforts by the non-profit corporations pay for the child care centers' staff and operational costs (exclusive of maintenance). The FAA depends on its employees to ensure the success of its mission to keep the nation's airspace safe. By

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

contributing to an increase in the capacity and efficiency of the air traffic control system, this program will strengthen transportation's role in supporting economic growth.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 5,189.0
FY 1994 Appropriated	---	4,845.0
FY 1995 Request	Various	4,400.0
Future Requirement	---	<u>12,600.0</u>
Total	Various	\$27,034.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
ARTCC Child Care Center Construction	4	\$4,400.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Budget Item	Title	Amount	Location	CIP Item(s)
3A07	FAA Employee Housing	\$8,000,000	Various	56-54

Basis for Request: FAA owns approximately 240 dwelling units that provide housing for FAA employees and their families at remote locations throughout the U.S. and overseas possessions. Employees occupying these units provide air traffic control services and national airspace system (NAS) facilities maintenance services to ensure safe, efficient, and expeditious movement of air traffic throughout these remote areas. Adequate and reasonably priced housing is not commercially available for employees and their families at these remote locations.

Description of Problem: In Alaska, where about 90 percent of FAA-owned housing is located, FAA plans to design and continue construction of new employee housing units. Included in these projects will be the replacement of water and sewage systems, electrical power plants, community service facilities, new furniture, roadways, and landscaping. The construction projects will also include the demolition of existing housing, some of which are over 40 years old and contain varying amounts of asbestos.

Construction costs at remote areas in Alaska are significantly higher than compared to similar construction projects in the lower 48 states. Many factors contribute to this higher construction cost including the lack of building materials and skilled labor at remote locations and the short construction season before the onset of inclement weather.

Description of Solution: Provide \$8,000,000 to construct new housing units for FAA employees and their families.

Benefits: FAA is finding it increasingly difficult to fill vacant positions at remote locations due, in part, to the poor condition of employee housing. The replacement of old employee housing will help FAA recruit and retain employees which will lessen relocation costs incurred as a result of high turnover rates.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 12,000.0
FY 1994 Appropriated	---	18,500.0
FY 1995 Request	---	8,000.0
Future Requirement	---	<u>43,700.0</u>
Total	Various	\$82,200.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Provide FAA Housing	Various	\$8,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
3A08	Logistics Support Systems and Facilities (LSSF)	\$5,000,000	1	56-37

Basis for Request: This is the fourth year of a multiyear project to identify and provide support equipment, facilities, and automated systems directly required for NAS project deployment life-cycle support. The implementation of the Capital Investment Plan (CIP) impacts the FAA Logistics Center logistics support functions, particularly supply support.

Description of Problem: The FAA Logistics Center supports NAS equipment, facilities, and systems that have become obsolete or have significant deterioration leading to sparing/support problems in the Exchange and Repair (E&R) program. In addition, the number of spares, as a direct result of CIP deployments, have increased and the technology for testing and quality control has changed. Lack of resources results in the inability to replace obsolete/deteriorated unique depot test equipment, to provide an effective material handling capability, and to automate material management processes for managing inventories supporting NAS equipment/systems.

Description of Solution: To provide responsive life cycle support, the FAA Logistics Center needs to have new unique depot automated test equipment (ATE)/other test equipment for repair of complex new NAS equipment; and to design, develop, and implement automated management processes for managing inventories supporting the NAS equipment/systems.

Benefits: Adequate equipment, facilities, spare parts, and automated systems will enable the FAALC to provide adequate life cycle support for NAS equipment/systems, thus allowing the FAA to continue the mission of providing a safe, secure and efficient aviation system.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$3,500.0
FY 1994 Appropriated	---	5,000.0
FY 1995 Request	1	5,000.0
Future Requirement	---	1
Total	1	\$13,500.0

¹ Continuing requirement to be validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Development of automated management processes for managing inventories supporting NAS equipment/systems	---	\$3,600.0
2. Provision of new unique automatic test equipment/other test equipment needed for repair of new NAS equipment/systems	---	<u>1,400.0</u>
Total	<u>1</u>	<u>\$5,000.0</u>

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
3A09	Test Equipment - Maintenance Support for Replacement	\$4,000,000	Various	56-27

Basis for Request: The installation of new solid-state facilities and equipment in the National Airspace System has established a requirement to replace the older tube-type equipment with more accurate and stable test equipment.

Description of Problem: A large percentage of the test equipment currently used in equipment maintenance was designed to be compatible with tube-type technologies. As more and more of the tube-type equipment is being replaced with solid-state equipment, the ability of the older tube-type test equipment is being exceeded. The newer equipment requires more precision and accuracy in verifying proper operation and must also be compatible with equipment in a remote maintenance environment.

Description of Solution: Provide \$4,000,000 to upgrade the test equipment used in the maintenance of the National Airspace System.

Benefits: Replacement reduces high maintenance and repair costs associated with the older test equipment; the new test equipment is more accurate and stable; test equipment on-line availability time would increase, and new equipment supply support is commercially available off-the-shelf. This program provides support to multiple programs and contributes to achieving all five administration themes.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$33,897.0
FY 1994 Appropriated	---	9,000.0
FY 1995 Request	---	4,000.0
Future Requirement	---	
Total	Various	\$46,897.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Equipment	Various	\$4,000.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item:</u>
3A10	Radio Frequency Interference (RFI) Vans	\$2,300,000	Various	46-16

Basis for Request: The demand for frequencies in the electromagnetic spectrum continues to increase as existing facilities are expanded and new systems are introduced into the national airspace system (NAS). With this growth comes crowding and its attendant radio frequency interference (RFI). Effective management of the radio spectrum, which more and more includes resolution of interference problems, is essential to the successful operation of the NAS.

Description of Problem: The growth of radio spectrum use by government and non-government entities contributes to the amount of RFI experienced on a daily basis to commissioned NAS facilities, and impacts the commissioning of new NAS facilities. Our methods and efficiency of RFI investigation need to keep pace with the growing NAS system. At present, regional spectrum management officers (SMO) use nonstandard and in many cases old inferior test equipment in various ad hoc trucks to track down RFI.

Description of Solution: This project will provide funds for the purchase of four of the 11 required vans with test/analysis equipment.

Benefits: The major benefit is that of providing the regions with the necessary RFI vans, and the training in their use, toward that goal of achieving efficient, independent identification of the source of interference problems.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$2,400.0
FY 1994 Appropriated	Various	2,000.0
FY 1995 Request	Various	2,300.0
Future Requirement	---	<u>1,000.0</u>
Total	Various	\$7,700.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Services	Various	\$2,300.0

F&E-171

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Location:</u>	<u>CIP Item:</u>
3A11	Integrated Flight Quality Assurance	\$2,500,000	Various	66-21

Basis for Request: Modern digital aircraft can continuously record detailed data which could provide an audit trail for all phases of flight, from pushback at departure to docking on arrival. Because this information would be an accurate measure of aircraft performance within the NAS, it could provide a potentially invaluable tool for quality management by both airlines and the FAA, whether the focus were on flight operations surveillance, aircrew performance, or air worthiness. This project will provide the airline industry and FAA with the hardware and software capability to realize this potential.

Description of Problem: The FAR mandated capabilities of crash survivable flight recorders are tailored to post accident/incident investigation needs, and should remain so. Available technology for non-crash survivable recorders, however, could support orders-of-magnitude greater on-board data acquisition, which could be used for the above-cited purposes. Even if such technology were installed in aircraft, however, effective use of the information could not occur unless airlines and the FAA implemented associated data downloading, analysis, interpretation, and reporting capabilities (i.e., the requisite hardware and software to accomplish those functions). No such hardware and software capabilities presently exist in the U.S.. In addition, in view of the present economic situation within the airline industry, near term development of such capabilities is unlikely without FAA leadership.

Description of Solution: In cooperation with the airline industry and aircraft manufacturers, technological alternatives for airborne digital data recording equipment, including consideration of hardware which would be required to support immediate on-board analysis, will be installed and evaluated in a representative sample of modern technology aircraft. Evaluation of on-board equipment will address both functional issues and the cost-benefits associated with alternative hardware configurations. An analysis of appropriate parameters and sampling frequencies to meet the above cited needs will be conducted. The software which would be required to support both airborne and ground based automated analysis of voluminous digital data will be developed, installed, evaluated, refined, and validated. Concomitantly, the hardware and software necessary to support access and timely use of this information at FAA field locations responsible for specific air carrier surveillance, as well as at FAA headquarters for global trend analysis purposes, will be developed, evaluated, refined, and implemented.

Benefits: This project will provide the airlines and the FAA with a measurement tool to assess the effectiveness of quality management initiatives in both industry and government targeted at maximally efficient flight operations. This program will support the safety of our transportation system.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	0.0
FY 1995 Request	---	2,500.0
Future Requirement	---	<u>16,200.0</u>
Total	Various	\$18,700.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Prototype Evaluation	Various	\$2,500.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
3A12	Safety Performance Analysis System (SPAS)	\$7,400,000	Various	56-68

Basis for Request: To improve inspection, surveillance, and related activities through the implementation of the program currently undergoing design. This system will integrate and analyze information currently within other data bases including but not limited to the aviation safety analysis system (ASAS) and will provide assistance to inspectors, supervisors, and managers to target the areas of highest importance

Description of Problem: The FAA has more than 25 data bases with different data structures and protocols containing information on thousands of operators, air agencies, aircraft and air personnel. These data bases are not integrated and the information cannot be analyzed in any automated fashion. As such, the FAA does not have the capability to use the data to target the areas of highest risk or priority or to validate the national work program. One of the major functions of the safety inspector is to "prevent" safety problems. In order to that, s/he must have access to synthesized information that reflects potential problem areas in a timely fashion. The SPAS system is being designed with Research, Engineering and Development funds and will be ready for transition into Facilities and Equipment in FY 1995. Currently there is no dependable way to deliver this solution to the flight inspector field offices in a timely and dependable fashion. Each data base query is independent and requires from 3-20 minutes depending on complexity and line traffic. Some queries take in excess of two hours. A SPAS support system is required consisting of hardware, software, interfaces, and telecommunication interfaces.

Description of Solution: The SPAS system reflects information back to inspectors in terms of safety performance indicators which provide a means to integrate and analyze information from various sources. We anticipate a five second turnaround time for SPAS to deliver this solution. Currently a client server architecture, super micro computers to calculate the SPAS algorithms, servers, and a distributed wide-area network is under evaluation as well as other potential solutions. This cost-effective solution will utilize commercial off the shelf products and open architecture standards.

Benefits: Once SPAS is implemented, FAA inspectors, supervisors, or managers will be able to access integrated information in a timely fashion, and can assure that we are relying on analysis to employ our inspectors in the areas they are most needed, rather than on non-standard intuition. We will be able to analyze and use the large and growing amount of information coming in daily from throughout the world

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$0.0
FY 1994 Appropriated	---	0.0
FY 1995 Request	---	7,400.0
Future Requirement	---	<u>6,400.0</u>
Total	Various	\$13,800.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
System Design, Development, and Implementation	Various	\$7,400.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item:	Title:	Request:	Locations:	CIP Item(s):
3A13	Performance Enhancement Systems (PENS)	\$2,543,000	Various	56-72

Basis for Request: To provide aviation safety inspectors (ASI) with sufficient resources to oversee aviation standards, thus ensuring a consistently high level of compliance with aviation safety requirements.

In surveillance of the industry, the inspectors require the capability to identify and track potential and actual violations of safety standards, efficiently and expeditiously. Inspectors specifically require the capabilities to:

- Data Access - directly access air operator technical and safety data, while working in a variety of field environments.
- Data Collection - collect and store data from the field.
- Data Analysis - analyze the combined data, with cross references to regulations and internal guidance, and
- On-site Decision making - make on-site decisions based on the combined information

Description of Problem: The ASI must access large FAA and industry databases for analysis, research, and reference. The manual methods currently provided for interface with those databases are not sufficient to meet the growing needs of the inspector. Surveillance, certificate management, and safety related information cannot now be uniformly retrieved, analyzed, and synthesized in an efficient and expeditious manner for real-time use by the field inspectors.

Current methods for accessing data from the field are severely constrained by limited telecommunications and non-integrated databases with inconsistent data formats and no cross reference ability. Field data collection is not supported by any tools, and data entry is not currently possible from the field. Analysis of the collective data is not supported by any tools, either in the field or in the office. Decision-making in the field is subsequently not supported by complete data and analysis and may be subject to errors of omission.

Description of Solution: The capability planned to meet this need will apply advanced technology in the form of hardware and software systems to support flight standards personnel in the collection and analysis of aviation industry data and as information managers. The inspectors will be provided with a filed system that will allow them to access central databases, collect and store field data, synthesize and analyze the collective data, cross reference regulations and internal guidance, and subsequently make more accurate decisions from the field in real-time.

Benefits: Specific benefits of the system include (1) data access provided to central FAA and industry databases as well as regulations and handbooks in electronic form on a real-time basis while in the field, (2) collected data provided to FAA and industry databases on a real-time basis while in the field. This would

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

eliminate redundant data recording and entry operations. The transcription step provided by contractors will be eliminated, resulting in a savings of 100 man years annually (50% improvement) and \$3,000,000 per year in contract costs; (3) allows analysis of combined data, including cross reference regulations and guidance, on a real-time basis in the field. Hypermedia regulations and handbooks are compact and easy to search. It takes less than five minutes to use PENS to research regulatory questions that took two to three days to research manually, resulting in a 99.9% reduction in the time previously required. Eliminates 25% of redundant data entries when completing multiple forms. Approximately 100 man-years are lost annually due to data correction. PENS would reduce data correction errors by 90%; (4) more accurate and timely decision making is possible on-site. Reports and letters can be issued in the field, for example, notification or certificate denial can be given at the time of test, and can be based on solid analysis, not intuition. Policy or guidance changes made in headquarters can be in the hands of the inspectors the next day, rather than within months.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	0.0
FY 1995 Request	---	2,543.0
Future Requirement	---	<u>5,557.0</u>
Total	<u>1</u>	\$8,100.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Hardware/Software/System Design/Implementation	Various	\$2,543.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

Budget Item	Title	Request	Location	CIP Item
3A14	Aviation Safety Advanced Analysis Program (ASAAP) (formerly National Aviation Safety Data Center)	\$4,000,000	1	56-52

Basis for Request: A primary mission of the FAA is to perform integrated safety analyses and studies which combine the expertise of staff specialists from FAA program services (air traffic, airway facilities, flight standards, airports, and aircraft certification) with the expertise of staff specialists in quantitative analysis and information systems. In order to fulfill this mission, FAA requires access to high quality safety information/data resources and advanced analytical tools. The aviation safety advanced analysis program (ASAAP) will provide FAA with these resources and tools through the application of automation technology and rigorous data management procedures. ASAAP is an over-arching computer analysis system which will integrate data from regulatory ASAS databases and from air traffic, airport, airway facilities, and other governmental data sources for safety research.

Description of Problem: Studies by the General Accounting Office (GAO), OTA, and the National Transportation Safety Board (NTSB) have been critical of the FAA's overall capability to perform safety analysis and manage safety information. They have concluded that the information systems and analytical methodologies currently employed by the FAA to analyze and monitor safety performance of the NAS are antiquated and inefficient, cumbersome and difficult to use, require repetitious duplication of effort, and produce reports which often are not timely and of questionable validity.

Description of Solution: The objective of the ASAAP is to unlock potential for enhanced aviation safety by employing automation technology and rigorous data management procedures to significantly increase the FAA's return on current and future investments in safety information systems. This will be accomplished by simplifying complicated and difficult access procedures, strengthening questionable data integrity, enabling analysis to be conducted on an integrated basis across multiple databases, and coupling the power of advanced automation and analytical tools with the expertise of FAA analysts and managers.

Benefits: This program will significantly enhance safety analysis and monitoring capabilities

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	2,000.0
FY 1995 Request	1	4,000.0
Future Requirement	---	<u>11,000.0</u>
Total	Various	\$17,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Access to Information	---	\$ 575.0
2. Data Quality/Administration	---	949.0
3. Program Support	---	747.0
3. Software/Hardware Integration	<u>1</u>	<u>1,729.0</u>
Total	1	\$4,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item:</u>
3 A15	Airport Datum Monument Program	\$1,500,000	Various	46-16

Basis for Request: Accurate position reference data is essential to the operation of automated navigation and air traffic control (ATC) systems. In turn, navigational/ATC systems have created an urgent need for additional and more accurate position data.

Description of Problem: Basic data is derived from the airport obstruction survey program conducted by the National Oceanic Service (NOS). These extremely accurate data is tied to the North America Datum (NAD) system and is used to form the matrix for the positioning of all data with the ATC system and on aeronautical charts. In 1985, accurate survey data was available for only 733 of 2,500 airports that require this data - those airports with instrument approach procedures. Future LORAN C and global positioning system (GPS) candidate airports will also require accurate position data in order to construct instrument approach procedures. There are approximately 1,000 additional airports that are candidates for the LORAN C and GPS program.

Description of Solution: Provide \$1,500,000 to establish survey monuments at 300 airports per year. The program, begun in FY 1985 and continuing through FY 1995 will establish survey monuments on each of approximately 1,700 airports, thus tying them to the NAD system. After completing the surveys from the 1,700 airports with non-precision instrument approach procedures, the program will continue to include surveys for LORAN C and GPS candidate airports.

Benefits: (1) Will provide greatly improved accuracy for 3,500 airports to meet requirements and tie these airports into NAD. (2) Will directly support instrument approach procedures automation program and procedures into NAD. (3) Will directly support a new airborne navigation system, such as inertial navigation, GPS, and flight management systems. (4) Will provide improved accuracy for controller chart supplement used for ATC adaption data.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	2,090	\$ 12,032.9
FY 1994 Appropriated	300	1,500.0
FY 1995 Request	300	1,500.0
Future Requirement	---	
Total	Various	\$15,032.9

¹ Future requirements will be based on local situations which are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Precision Survey Monument Establishment	300	\$1,500.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Locations:</u>	<u>CIP Number:</u>
3B01	Computer Based Instruction (CBI) - Expand/Improve	\$4,500,000	Various	56-02

Basis for Request: Computer Based Instruction (CBI) and Teletraining are recognized as effective and efficient training media, delivering a maximum amount of training in minimum time. CBI/Teletraining reduces the requirements for instructional services and for travel to a central location for traditional lecture/laboratory-type training. These training media enable the delivery of standardized training, tailored to the needs of the individual being trained. Students can opt to test through portions of a course in which they are already proficient, thus reducing duty time lost to training. Both CBI and Teletraining will provide the FAA with state-of-the-art quality training. Teletraining, which also offers cost savings in the delivery of courses, is now using existing resources available in the government to conduct teletraining pilot courses and to track cost-effectiveness.

Description of Problem: Present training is costly in per diem and travel expenses. The FAA needs cost-effective, performance-based training that will meet technical training requirements. With the introduction of new systems to the NAS, FAA personnel require both transition, initial, and refresher training.

Description of Solution: Provide \$4,500,000 for CBI learning stations with CD ROM, courseware development, and local area networks to:

1. Reduce training travel costs.
2. Improve effectiveness of training delivery.
3. Provide flexibility in scheduling training.
4. Provide standardized on-site delivery of technical training.
5. Decrease time spent away from the worksite.

Benefits: Computer Based Instruction and Teletraining will meet the FAA's current and future needs by training the technical workforce through standardized courseware, reducing training travel costs, and improving training efficiency. It will also provide flexibility in scheduling training by allowing greater local management control of training. The major cost savings are in student and instructor time costs, student and instructor travel, student per diem and student overtime.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$32,765.0
FY 1994 Appropriated	---	4,100.0
FY 1995 Request	---	4,500.0
Future Requirements	---	1
Total	Various	\$41,365.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Procure CBI Hardware (full feature OATS platforms)	200	\$3,000.0
2. Courseware Conversion and Development (New Courses Developed)	10	1,000.0
3. Teletraining (Equipment acquisition installation, communications)	---	500.0
Total	210	\$4,500.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Amount:</u>	<u>Location:</u>	<u>CIP Estimate:</u>
3B02	Aeronautical Center Training and Support Facilities	\$13,900,000	1	56-30

Basis for Request: The FAA Academy provides training for all electronic systems currently in the FAA inventory. The FAA Logistics Center provides repair support of NAS programs via contract and in-house repair and supply support of hundreds of programs supporting air traffic safety. The National Field Engineering Support Division provides second level engineering support for assigned facilities in the National Airspace System (NAS). The addition of new NAS Plan and Capital Investment Plan (CIP) equipment to the FAA's inventory has recently coupled with a significant student workload. This combination is causing the capacity of the FAA Academy, Logistics Center, and Engineering Support Division physical plants to be exceeded. The need for additional physical plant space results in a corresponding need for related infrastructure, such as roads, sewers, and water lines.

Description of Problem: Much of the current training is being conducted in portable and temporary structures scattered across the FAA Academy campus, and in some cases, in buildings that do not meet current building codes. Many of these individual buildings were not constructed to accept and protect today's modern air navigation equipment, nor are they suitable classrooms or laboratories for the conduct of training. Current facilities are in the proximity of Will Rogers World Airport and can cause interference with existing airport equipment. Also, space utilization for logistics support is currently at a maximum. New system implementation with inadequate instruction or supply/support facilities will result in field personnel unable to operate and/or maintain systems.

Description of Solution: Provide \$13,900,000 to fund the planning/construction of complexes and related infrastructure at the Aeronautical Center to replace antiquated, obsolete facilities and accommodate new systems. The funding will provide for completion of GNAS and ILS/MLS training complexes, planning for additional Logistics Center space, and necessary related infrastructure.

Benefits: Training and supply/support capabilities for new equipment would be greatly enhanced. Permanent facilities for the new generation of equipment would be available to support the training and supply/support requirements set forth in, or pursuant to implementation of, the NAS Plan and the CIP. As this program provides broad based support to multiple programs, it contributes to achieving all five major administration themes.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 7,600.0
FY 1994 Appropriated	---	6,600.0
FY 1995 Request	1	13,900.0
Future Requirements	---	<u>110,500.0</u>
Total	1	\$138,600.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Infrastructure	---	\$ 4,900.0
2. GNAS Training Complex	---	3,900.0
3. ILS/MLS Training Complex	---	5,100.0
Total	Various	\$13,900.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CTP Term(s):</u>
3B03	National Airspace System (NAS) Training Facilities	\$6,000,000	Various	56-35

Basis for Request: To meet the needs of NAS technical and management training, the FAA Academy and Center for Management Development are in need of improved communications capabilities. Additionally, the FAA Academy has a need for simulation training devices and upgraded instructor staff work areas and classrooms.

Description of Problem: As new NAS equipment is introduced in FAA facilities, the FAA must keep pace with training by acquiring and installing the same equipment, or high technology simulators at the FAA Academy. The FAA Academy and the Center for Management Development must be prepared to accommodate the necessary resulting changes in training programs. New system training demands will require enhanced automation of information management and improvements in other support functions, such as communications.

Description of Solution: Provide \$6,000,000 to fund the acquisition and installation of necessary simulation and communication devices, as well as classroom and work area improvements. Communication devices will be installed both at the FAA Academy and the Center for Management Development. Simulation devices and classroom/work area improvements will be implemented at the FAA Academy.

Benefits: National Airspace System technical and management training capabilities for new equipment will be greatly enhanced. Instructors will be able to more efficiently revise and produce lesson plans, laboratory exercises, and other instructional essentials. Students will be taught most efficiently and effectively by utilizing the most realistic learning environment possible.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	6,100.0
FY 1995 Request	2	6,000.0
Future Requirements	---	<u>\$7,300.0</u> ¹
Total	2	\$69,400.0

¹ Continued requirements are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Automation & Technology Procurement		
Interactive Instructional Delivery		
System/Part-Task Training Devices	1	\$ 2,400.0
2. AF Training Technology Procurement	1	3,400.0
3. Advanced Technology Classrooms	<u>1</u>	<u>200.0</u>
Total	1	\$6,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Items:</u>
4A01	System Engineering and Development Support	\$95,200,000	Various	26-13, 36-13

Basis for Request: The Capital Investment Plan (CIP) specifies the need for a total system approach to modernizing the National Airspace System (NAS). This effort will accommodate future demands and technology, improve vital safety services, and increase productivity, while reducing operating costs.

Description of Problem: The services of systems engineering, systems integration, and management support contractors are required to assist with implementation of the operational equipment, computer programs, procedures documentation, and activities in support of the CIP goals.

Description of Solution: Provide \$95,200,000 to procure necessary professional and technical expertise in support of the CIP implementation. This support covers problem definition and functional analysis through system design, equipment specification, configuration management, research and development in communications, navigation, landing, surveillance, automation, technology, preparation of procurement documentation, performance validation, transition planning, and system acceptance and certification.

Benefits: Provides technical and management support to FAA project/program managers for the efficient and timely implementation of the Capital Investment Plan. Provides ATC system expertise in specific areas of endeavor on an as-required basis.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 876,598.0
FY 1994 Appropriated	---	110,000.0
FY 1995 Request	---	95,200.0
Future Requirement	---	<u>576,100.0</u> ¹
Total	Various	\$1,657,898.0

¹ Includes follow-on SETA requirements.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. System Engineering Technical Assistance Prime Contractor and Support Contractor and Services	---	\$ 40,700.0
2. ATC System Development Contractor (e.g., MITRE)	---	36,400.0
3. System Engineering Support Contractors (Small Business, 8A, etc.)	---	<u>18,100.0</u>
Total	Various	\$95,200.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
4A02	Logistics Support Services (LSS)	\$8,000,000	Various	36-24, 26-16

Basis for Request: There is a large surge in materiel management, real property and contracting workloads associated with the peak period of the National Airspace System modernization effort.

Description of Problem: The Capital Investment Plan (CIP) will generate a peak workload for regional logistics divisions over the period FY 1988 through FY 1998 in contracting, materiel management, and real property acquisition and management.

Description of Solution: Provide \$8,000,000 to ensure that adequate real property acquisition, materiel management, and contracting are available for the various projects in direct support of the CIP. These requirements represent a temporary surge in activity and funds are required to contract for assistance rather than to recruit and then terminate federal employees over relatively short periods of time.

Benefits: Adequate real property acquisition, materiel management support, and contract administration will help reduce delays in the installation of new NAS Plan and CIP projects. This program provides support to multiple programs and contributes to achieving all five major administration themes.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 36,992.2
FY 1994 Appropriated	---	12,000.0
FY 1995 Request	---	8,000.0
Future Requirement	---	<u>72,000.0</u>
Total	Various	\$128,992.2

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Real Estate Acquisition, Materiel Management and Contract Administration	Various	\$8,000.0

**FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Location:</u>	<u>CIP Item:</u>
4A03	Mike Monroney Aeronautical Center - Lease	\$14,800,000	1	56-33

Basis for Request: The Mike Monroney Aeronautical Center provides centralized training, logistical, and services support for the agency. Primary facilities include the FAA Academy for centralized training and the FAA Logistics Center for warehousing equipment and materials, centralized repair, and facilities for administrative and other support services.

Description of Problem: The Federal Aviation Administration (FAA) and the Oklahoma City Airport Trust (OCAT) have renewed a formal lease agreement through April 30, 2012, whereby the FAA leases buildings and land comprising the Aeronautical Center.

Description of Solution: Provide \$14,800,000 for the Aeronautical Center lease for FY 1995.

Benefits: Continued leasing of the Aeronautical Center facilities provides a centrally located warehousing and staging facility for agency project work throughout the country and provides essential training facilities. This program contributes to achieving all five administration themes.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 53,654.2
FY 1994 Appropriated	---	13,200.0
FY 1995 Request	1	14,800.0
Future Requirements	---	100,145.8 ¹
Total	1	\$181,800.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity/ Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Aeronautical Center Lease Payment	1	\$14,800.0

¹ Through FY 2012, there is an estimated contingent liability of \$91,885,000 (present value) associated with the FAA's long-term leases of facilities for the Mike Monroney Aeronautical Center, Oklahoma City, Oklahoma.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
4A04	In-Plant NAS Contract Support Services	\$5,700,000	Various	36-23

Basis for Request: Due to the magnitude, nature, and complexity of the capital investment plan (CIP), additional support is and will be needed to manage contracts effectively and efficiently.

Description of Problem: Representation is needed on-site at FAA systems contractor and support contractor facilities to assist in the review and management of designated major systems acquisitions, as set forth in DOT order 4200.14C. The size of the contracting staff is inadequate and cannot provide an in-plant presence for timely contract administration services and production surveillance support.

Description of Solution: Provide \$5,700,000 to continue resident contract liaison offices (CLO's) at designated contractor facilities to provide an in-plant contract liaison and production surveillance capability for the FAA.

This contractor support will assist the FAA in monitoring progress, compliance, and problems of major contracts; review requests for progress payments; review proposed subcontracts for FAA contracting officer consent; ensure submission of required reports; provide an independent assessment of contractor production status and proposed workaround plans; review and evaluate contractor's proposals, and provide an assessment to assist the contracting officer in negotiations; and assist in the evaluation of claims.

Benefits: The FAA will receive timely and responsive production surveillance and contract administration support services for designated CIP system contracts. This will lead to a) improved coordination and communication between the FAA and CIP system contractor, b) more operative assistance to FAA during the award process of critical CIP contracts, c) more thorough analysis of CIP systems contractor production plans and proposals, d) reduced contract related processing time, and e) improved management of the contract administration process. As this program provides broad based support to multiple programs, it contributes to achieving all five major administration themes.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$11,864.3
FY 1994 Appropriated	---	5,400.0
FY 1995 Request	---	5,700.0
Future Requirement	---	<u>\$2,935.7</u>
Total	Various	\$75,900.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Contract Support Services	Various	\$5,700.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP (Start):</u>
4A05	Transition Engineering Support	\$52,000,000	Various	56-47

Basis for Request: FAA must ensure that equipment and systems being delivered by the acquisition process continue to transition into the operational environment as smoothly as possible. The emphasis for this planning must be placed upon engineering, operational procedures, human resource planning, staffing, training, logistic support, and other programmatic requirements.

Description of Problem: To achieve successful national airspace system (NAS) implementation, technical system transition plans, which are facility specific, must be regionally developed for each project. Identifying, coordinating, and resolving significant NAS integration issues must be continued; transition engineering studies and assessments must be continued, and NAS schedule assessments, interrelationships, and program impacts must be identified. Plans for software integration, human resources, operational procedures, and FAA-DOD transition must be developed.

Description of Solution: Provide \$52,000,000 for regional and headquarters transition planning and implementation, transition engineering, integration, and coordination of NAS programs. This project will provide technical support to the regions and various headquarters organizations for planning, implementation, and integration of projects during the post-development/post-acceptance period.

Benefits: Implementation of NAS transition planning is critical to timely identification and resolution of integration and implementation issues for the large numbers of NAS programs being implemented in the field. This program contributes to achieving all five administration themes.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 4,000.0
FY 1994 Appropriated	---	48,274.0
FY 1995 Request	---	52,000.0
Future Requirements	---	<u>293,526.0</u> ¹
Total	Various	\$397,800.0

¹ Continuing requirements (until FY 2000) to provide transition engineering and support at an average of approximately \$57,000,000 per year are being refined. Actual labor rates and final dollar requirements will not be known until 1994.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Services	Various	\$52,000.0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIF Item:</u>
4A06	National Airspace Integrated Logistics Support (NAILS)	\$5,000,000	Various	56-58

Basis for Request. This requirement continues funding for the development of analytical models, automation tools, and Integrated Logistics Systems support for the NAILS program to minimize costs associated with acquisition and maintenance of major NAS systems and equipment.

Description of Problem: Application of NAILS to NAS acquisitions ensures program requirements are incorporated into planning, acquisition, and maintenance documents. Infusion of NAILS requirements into the planning and acquisition phases of NAS facility, systems, and equipment is essential to provide supportability over their operational life cycle. Continued development of models and automation tools and integrated logistics system support provides for cost effective management of NAS acquisitions.

Description of Solution: Provide \$5,000,000 to fund this increment of a multiyear program to incorporate NAILS requirements into NAS acquisitions, integrate logistics support requirements and information to organize and manage the data in a central database, and develop the necessary models and automation tools to support the program.

Benefits: NAILS enables the agency to effectively manage NAS supportability and minimize costs associated with acquisition and maintenance. Logistics information data and models and automation tools are used by the agency to perform repair level analysis and identify spares quantification to identify equipment failure trends, influence equipment design, and reduce inventory requirements for cost effective management over the operational life cycle of NAS systems. This program supports multiple projects and contributes to achieving all five major administration themes.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 16,556 0
FY 1994 Appropriated	---	7,000 0
FY 1995 Request	---	5,000 0
Future Requirement	---	<u>50,644 0</u>
Total	Various	\$79,200 0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Equipment and Services	Various	\$5,000 0

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
4A07	Frequency and Spectrum Engineering	\$1,600,000	Various	26-15, 56-15, 56-26

Basis for Request: Thorough long-range planning is required to acquire and retain the radio frequency spectrum for aeronautical systems, and provide spectrum management guidance to agency personnel and to various national/international users. The resolution of frequency interference problems is our most important function in maintaining the integrity of the NAS

Description of Problem: The radio frequency spectrum is a limited resource which faces continually increasing congestion and competition among its users. In addition, radio frequency interference (RFI) is a growing problem particularly in the area of major airports. Careful planning is required to avoid problems with interference, poor propagation, and unavailability of spectrum for particular applications. Frequency interference problems need to be identified and rectified more quickly as their numbers continue to grow.

Description of Solution: This project will provide funds to: (a) conduct studies to determine most effective long term interference free spectrum use for future wide area and local area global navigation satellite system (GNSS) landing systems, with consideration for international (ICAO) acceptance; (b) conduct aeronautical band studies to identify interference thresholds; (c) provide applications engineering analysis of radio frequency propagation and electromagnetic compatibility; (d) provide criteria for development of the future air-to-ground VHF communications system; and (e) modernize software and hardware for more efficient radio frequency engineering.

Benefits: Effective radio spectrum management, electromagnetic compatibility, non-interference transition of new systems (including GPS) into the National Airspace System, and expeditious RFI resolution. This program will strengthen Transportation's role in providing a dependable, interference-free radio frequency spectrum for the NAS.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$12,200.0
FY 1994 Appropriated	Various	2,000.0
FY 1995 Request	Various	1,600.0
Future Requirement	---	
Total	Various	\$15,800.0

¹ Future requirements will be based on activity levels and local situations which are validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Centrally Procured Services	Various	\$1,600.0

**FY 1995 OFFICE OF MANAGEMENT AND BUDGET
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
4A08	Acquisition Oversight	\$2,000,000	Various	46-16

Basis for Request: Independent oversight of major systems acquisitions (MSA) ensures that a disciplined process is followed from establishment of the mission need to demonstration of operational readiness.

Description of Problem: Since establishing the Office of Acquisition Policy and Oversight in 1990, responsibilities have increased to a large degree, with no increase in staff. The requirement for mission need statements and acquisition plans for all new CIP projects early in FY 1992 added a heavy new workload for analysts who are responsible for overseeing the process, seeing that the statements and plans are properly prepared, and evaluating the needs themselves. Over 100 acquisition programs were handled during FY 1992. New requirements have been added for documentation and for programs in the operations budget and R&D budget. The number of missions need statements has risen to well over 150. The workload presented by all of this is over and above the load which existed when the staffing level was established.

Description of Solution: A support contractor has been employed to assist with the above workload. This support will be even more necessary in FY 1995.

Benefits: Independent evaluation of the major acquisitions will help to ensure that good management practices will be followed and that informed decisions will be made at the appropriate times and by the appropriate levels. It will ensure that these acquisitions follow a logical process based on OMB Circular A-109, Major Acquisition.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$1,000.0
FY 1994 Appropriated	---	1,700.0
FY 1995 Request	---	2,000.0
Future Requirement	---	---
Total	Various	\$4,700.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
MSA Oversight/Evaluation	Various	\$2,000.0

¹Continued requirements are validated on a year-to-year basis.

FY 1995 OFFICE OF MANAGEMENT AND BUDGET
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item:</u>
4A09	FAA System Architecture	\$3,000,000	Various	56-61

Basis for Request: This request continues funding for a corporate systems architecture for the FAA. To meet its critical mission and program responsibilities, including aviation safety and air traffic management, the FAA requires an environment in which information and data are defined consistently, collected and maintained with accuracy and reliability, and easily accessible by authorized users. To support this environment, the FAA needs an information technology (IT) infrastructure of computing and communication systems that interoperate smoothly and efficiently, perform reliably and securely, are modular and expandable, and have well defined interfaces. FAA requires automated application systems that are modular, expandable, and portable to accommodate changes in mission requirements or technology platforms, operate efficiently on whatever technology platform they reside, are developed and maintained efficiently and cost effectively, and are integrated with other related applications and databases. Finally, acquisition and development investments for information technology and systems must be leveraged across programs and organizations to gain efficiencies and economies of scale.

Description of Problem: The FAA has systemic agency-wide IRM problems, including ineffective management and maintenance of existing automated systems; unreliable and inconsistent data, incompatible and duplicative hardware, software and communication equipment and services; and a fragmented security environment that is cumbersome to operate and vulnerable to compromise. The FAA also continues to lag behind the aviation industry in moving from paper-based processes to implementing electronic data systems and interchange standards. Information systems are often delivered late and over budget and do not meet all of the user needs. There is no corporate process to effectively obtain and align agency information resources with established business priorities. Multiple sources of the same data exist throughout the FAA and the available data is not always perceived as comprehensive, relevant, reliable, or accurate. The agency also needs a comprehensive repository of information on FAA databases and software and increased consideration of reusability in the design, development, and maintenance of information systems. The FAA expends considerable resources to collect and maintain valuable data that is under-utilized after the initial collection.

Description of Solution: Provide \$3,000,000 to build upon the framework that will be developed in FY 1994, concentrating on six major architecture initiatives: business process improvement, data management, corporate software engineering, core systems architecture, electronic data interchange, and IT security. Activities will include refinement of strategic, program, and implementation plans; development of agency-wide policies, guidelines, and procedures; initiation of model and prototype development as well as some pilot projects; EDI pilots and initial implementation; initiation of a data quality improvement program; IT assessment and validation; consulting with FAA program staff; review/evaluation of program products; initial training; and development of requirement specifications and statements of work for acquiring IT hardware, software, and services for corporate repository, data warehouse, software engineering tools, electronic data interchange, and security.

Benefits: The benefits of this program are more effective use of IT to meet agency mission requirements.

F&E-200

FY 1995 OFFICE OF MANAGEMENT AND BUDGET
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

improved productivity, increased organizational effectiveness, increased sharing of data and information, less duplication of systems and data, more timely and better quality data and information, faster and less costly software development, reduced life cycle maintenance costs, enhanced public access to FAA data, and increased security and integrity of data and systems. In addition, electronic data interchange will increase speed and reliability and reduce the costs of information and data interchange between FAA and the airline industry, aviation organizations, and other organizations with which FAA does business. As this program provides broad based support to multiple programs, it contributes to achieving all five major administrative themes

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	2,000.0
FY 1995 Request	---	3,000.0
Future Requirement	---	<u>96,900.0</u>
Total	Various	\$101,900.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Pilots/Prototypes (data repository, data warehouse, security, etc.)	---	\$264.0
2. Architecture Models/Design (data, functional technology, security applications, etc.)	---	388.0
3. Requirements Definition/Design	---	378.0
4. Policy, Guidelines, and Procedures	---	354.0
5. Hardware/Software	---	269.0
6. EDI Pilots/Initial Implementation	---	535.0
7. Technology Assessment/Validation	---	202.0
8. Consulting, Training, Review	---	201.0
9. Planning (Strategic, Program, and Implementation)	---	152.0
10. Data Quality Improvement	---	149.0
11. Functional Specification Development/ Acquisition Strategy	---	<u>108.0</u>
Total	Various	\$3,000.0

FY 1995 OFFICE OF MANAGEMENT AND BUDGET
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
4A10	Technical Support Services Contract (TSSC)	\$62,000,000	Various	46-16

Basis for Request: The Capital Investment Plan (CIP) has reached the stage where large quantities of new equipment are being deployed to the field. Significant work is required to modify and relocate existing equipment to meet the demands placed on the national airspace system (NAS).

Description of Problem: The FAA's CIP for the 1995 through 2002 time period will require additional F&E resources. Implementation and installation of NAS improvements require specialists with electronic, mechanical, and civil engineering expertise. A national technical support services contract was awarded to provide the regions and centers with increased scheduling flexibility required to meet the large number of equipment deliveries.

Description of Solution: Provide \$61,000,000 to fund the technical support services contract in FY 1995. The average projected cost per man year (staff year) for TSSC for FY 1995 is estimated to be approximately \$96,000. This includes all associated cost (salary, travel, general and administrative overhead). Also provide \$1,000,000 for continued development and management of the Resource Tracking Program (RTP) formerly the Regional Project Management System (RPMS)

Benefits: Provide supplemental resources as required to assist the F&E organizations in accomplishing their mission. This program contributes to achieving all five major administration themes.

APPROPRIATIONS SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$187,100.0
FY 1994 Appropriated	---	64,900.0
FY 1995 Request	---	62,000.0
Future Requirement	---	<u>433,000.0</u>
Total	Various	\$747,000.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity/ Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Headquarter and Regional Implementation	Various	\$61,000.0
2. Resource Tracking Program	<u>Various</u>	<u>1,000.0</u>
Total	Various	\$62,000.0

F&E-202

FY 1995 OFFICE OF MANAGEMENT AND BUDGET
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
4A11	Program Support Services	\$5,000,000	Various	Various

Basis for Request: There is a critical need to provide supply support for acquisition and replenishment of spares and repair parts associated with the NAS supply support program.

Description of Problem: Many of the requirements generated from the facilities and equipment program are due to systems that are scheduled for decommissioning but, due to schedule slippage of new NAS systems, must remain in the system. Initial provisioning is inadequate as initial burn-in of new systems use available spares.

Description of Solution: Provide \$4,000,000 to adequately fund spare parts provisioning for new NAS equipment and systemwide equipment modifications on older equipment. Provide \$1,000,000 for freight costs to ensure contractor-to-site or depot-to-site deliveries.

Benefits: Acquisition of spare parts and freight dollars will ensure the NAS system continued supply support needed to meet mission requirements. The program contributes to achieving all five administration themes.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	0.0
FY 1995 Request	---	5,000.0
Future Requirement	---	0.0 ¹
Total	Various	\$5,000.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
1. Spare Parts	---	\$4,000.0
2. Freight	---	1,000.0
Total	Various	\$5,000.0

¹Continuing requirement to be validated on a year to year basis.

**FY 1995 OFFICE OF MANAGEMENT AND BUDGET
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)**

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
4A12	Program Support Leases	\$19,217,000	Various	Various

Basis for Request: FAA Order 2500.8A established funding criteria that affects our budget request beginning in FY 1995. The changes will be primarily in the area of facilities operational lease costs.

Description of Problem: No centralized control to oversee operational facilities leases.

Description of Solution: Provide \$19,217,000 to fund on-going facilities operational leases as prescribed by FAA Order 2500.8A.

Benefits: This is a collection of facilities leased by the FAA. This program contributes to achieving all five administration themes.

APPROPRIATION SUMMARY

	<u>Locations</u>	<u>Amount (\$000)</u>
Appropriated (FY 1982-1993)	---	\$ 0.0
FY 1994 Appropriated	---	0.0
FY 1995 Request	---	\$19,217.0
Future Requirement	---	0.0 ¹
Total	Various	\$19,217.0

COST ESTIMATE OF WORK TO BE FUNDED THIS YEAR

<u>Activity Tasks</u>	<u>Locations/ Quantity</u>	<u>Estimated Cost (\$000)</u>
Operational Leases	---	\$19,217.0

¹Continuing requirement to be validated on a year-to-year basis.

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

<u>Budget Item:</u>	<u>Title:</u>	<u>Request:</u>	<u>Locations:</u>	<u>CIP Item(s):</u>
5A01	Personnel and Related Expenses	\$215,400,000	Various	62-20

Summary Requirements (\$000)

	<u>FY 1993</u>	<u>FY 1994</u>		<u>FY 1995</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Change</u>	<u>Request</u>
Positions	2,504	2,504	0	2,504
FTE	2,170	2,300	0	2,300
EOY Employment	2,270	2,450	0	2,450
Funding	\$186,107	\$198,000	\$17,400	\$215,400

This activity funds the personnel, travel and related expenses of the FAA F&E workforce. The F&E work specialties include electronic, civil, and mechanical engineers; electronics technicians; quality control and contract specialists; and flight inspection personnel.

	<u>FY 1993</u>	<u>FY 1994</u>		<u>FY 1995</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Change</u>	<u>Request</u>
Personnel Compensation & Benefits	\$133,522	\$145,112	\$7,088	\$152,200
Travel	29,500	32,862	3,138	36,000
Permanent Change of Station	20,635	18,190	5,010	23,200
Other Objects	2,450	1,836	2,164	4,000
Total Funding	\$186,107	\$198,000	\$17,400	\$215,400

The following summary reflects estimated staffing levels for FY 1993 through FY 1995:

	<u>FY 1993</u>	<u>FY 1994</u>		<u>FY 1995</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Change</u>	<u>Request</u>
Full Time Permanent Positions:				
Regions Airway Facilities	1,573	1,573	0	1,573
Technical Center	388	388	0	388
Aeronautical Center	59	59	0	59
Flight Inspection	29	29	0	29
Acquisition Support (HQs)	155	155	0	155
Program Control (HQs)	300	300	0	300

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

Total Positions	2,504	2,504	0	2,504
Total FTE	2,170	2,300	0	2,300
Funding for PC&B(\$000)	\$133,522	\$145,112	\$7,088	\$152,200

Nondiscretionary Increases \$7,990,000

\$ 3,247	Annualization of FY 1994 WIGs; new FY 1995 WIGs
2,100	Annualization of FY 1994 locality pay increase
1,741	FY 1995 1.6% pay raise
902	Inflation

TRAVEL

The budget includes \$36,000 to provide the required level of travel to support NAS Plan implementation in FY 1995. The request for travel includes inflation and an increase to the travel base.

Travel requirements for F&E engineers often exceed 50 percent of their time, with many installation crews and technicians spending approximately 80 percent of their time on the road. In addition, new F&E engineer hires gain invaluable on-the-job experience working closely with journeyman level engineers on site. The primary field activities include developmental and operational testing functions, factory acceptance tests, site evaluations, site coordination, critical design reviews, contract monitoring, quality assurance, and support to field installation crews.

OTHER OBJECTS

Includes funding for small equipment and tools, common use supplies and printing that is related to generic F&E programs, not project specific. The request includes inflation and an increase to support the overhead costs of F&E funded personnel. Regional Operations funding to replace small equipment, supplies and printing in support of all FAA personnel has been significantly reduced, thereby making it necessary to obtain additional funding in F&E to support F&E personnel.

PERMANENT CHANGE OF STATION (PCS) MOVES

	FY 1993 <u>Actual</u>	FY 1994 <u>Estimate</u>	<u>Change</u>	FY 1995 <u>Request</u>
Funding (\$000)	\$20,635	\$18,190	\$5,010	\$23,200
Number of moves	549	470	218	688

Beginning with FY 1993 budget, all PCS costs directly associated with the actual consolidation or opening (one-time moves to transfer Air Traffic and Airway Facilities staff to a new facility) of various NAS facilities are budgeted for in Activity 5. These costs are a one-time occurrence and properly included as part of the capitalized costs of the projects. The following summary indicates projected FY 1994 obligations and FY 1995 requirements by project:

F&E-206

FY 1995 PRESIDENT'S BUDGET SUBMISSION
FACILITIES AND EQUIPMENT APPROPRIATION
(AIRPORT AND AIRWAY TRUST FUND)

	<u>FY 1994 Estimate</u>		<u>FY 1995 Request</u>
Southern California TRACON	\$ 7,985	(148 moves)	
Dallas/Ft Worth Metroplex	1,400	(53 moves)	\$2,100
Flight Service Station	3,165	(102 moves)	\$5,400
Denver Airport	1,680	(46 moves)	
New Chicago TRACON	760	(21 moves)	\$900
DOD Base Closure			\$5,900
Level I Tower Closure			\$5,700
 Total one-time moves	 \$14,990	 (370 moves)	 \$20,000

In addition to the one-time moves, there is \$3,200 in the base for 100 PCS moves for the F&E workforce associated with normal attrition and reassignments to cover shifts in workload.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Research, Engineering and Development
(Airport and Airway Trust Fund)

For necessary expenses, not otherwise provided for, for research, engineering, and development, in accordance with the provisions of the Federal Aviation Act of 1958, as amended (49 U.S.C. App. 1301 et seq.), including construction of experimental facilities and acquisition of necessary sites by lease or grant, [\$254,000,000] \$266,800,000, to be derived from the Airport and Airway Trust Fund and to remain available until expended: Provided, That there may be credited to this appropriation funds received from States, countries, municipalities, other public authorities, and private sources, for expenses incurred for research, engineering, and development. (Department of Transportation and Related Agencies Appropriations Act, 1994; additional authorizing legislation to be proposed.)

Standard Form 300

July 1984, Bureau of the Budget
Circular No. 4-11, RevisedDEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESEARCH, ENGINEERING AND DEVELOPMENT
<AIRPORT AND AIRWAY TRUST FUND>
Program and Financing (in thousands of dollars)

Identification Code	1993 Actual	1994 Estimate	1995 Estimate
69-8108-0-7-402			
Program by Activities:			
Direct program:			
00.01 R.E&D Management and Infrastructure	10,186	12,699	9,673
00.02 Capacity and Air Traffic Management Technology	66,515	83,891	81,901
00.03 Communications, Navigation and Surveillance	28,574	40,225	39,472
00.04 Weather	6,525	2,430	2,909
00.05 Airport Technology	6,773	7,509	9,443
00.06 Aircraft Safety Technology	36,308	43,175	51,004
00.07 System Security Technology	34,389	37,471	36,604
00.08 Human Factors and Aviation Medicine	27,355	31,535	25,329
00.09 Environment and Energy	6,130	5,687	5,429
00.10 Innovative/Cooperative Research	5,713	7,209	5,036
00.91 Total Direct Program	228,468	271,831	266,800
01.01 Reimbursable Program	299	1,510	1,549
10.00 Total Obligations	228,767	273,341	268,349
Financing:			
21.40 Unobligated balance available, start of year	-16,299	-17,831	--
24.40 Unobligated balance available, end of year	17,831	--	--
39.00 Budget authority (gross)	230,299	255,510	268,349

Standard Form 300

July 1984, Version of the Budget

Circular No. 511, Revised

DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 RESEARCH, ENGINEERING AND DEVELOPMENT
 <AIRPORT AND AIRWAY TRUST FUND>
 Financing and Outlays (in thousands of dollars)

Identification Code	1993 Actual	1994 Estimate	1995 Estimate
69-8108-0-7-402			
Budget authority:			
Current:			
40.00 Appropriation	230,000	254,000	266,800
Permanent:			
68.00 Spending authority from offsetting collections	299	1,510	1,549
Relation of obligations to outlays:			
71.00 Total obligations	228,767	273,341	268,349
72.40 Obligated balance, start of year	179,149	195,305	200,536
74.40 Obligated balance, end of year	-195,305	-200,536	-189,036
87.00 Outlays (gross)	212,611	268,110	279,849
Adjustments to budget authority and outlays:			
Deductions for offsetting collections:			
88.00 Federal Funds	-284	-1,434	-1,472
88.40 Non-Federal sources	-15	-76	-77
88.90 Total, offsetting collections	-299	-1,510	-1,549
89.00 Budget authority (net)	230,000	254,000	266,800
90.00 Outlays (net)	212,312	266,600	278,300

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)

The FY 1995 budget proposes funding to conduct research, engineering and development programs to improve the national air traffic control system by increasing its safety, security, productivity and capacity to meet the expected air traffic demands of the future. The agency also administers human factors and aviation medical research aimed at increasing the personal effectiveness and safety of air traffic controller personnel, airway facilities maintenance, and the safety of aircrew members.

These programs are conducted by the agency's technical personnel and through contracts with qualified private firms, universities, individuals and through agreements with other Government agencies.

Standard Form 300

July 1984, Bureau of the Budget
Circular No. 4-11, Revised

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESEARCH, ENGINEERING AND DEVELOPMENT
<AIRPORT AND AIRWAY TRUST FUND>
OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

Identification Code	1993 Actual	1994 Estimate	1995 Estimate
69-8108-0-7-402			
Direct obligations:			
Personnel compensation:			
11.1 Full-time permanent	34,545	37,337	38,307
11.3 Other than full-time permanent	2,017	2,006	2,170
11.5 Other personnel compensation	1,040	1,155	1,274
11.8 Special personal services payment	669	458	475
11.9 Total personnel compensation	38,271	40,956	42,226
12.1 Civilian personnel benefits	7,512	8,271	8,601
21.0 Travel and transportation of persons	3,936	4,470	4,728
22.0 Transportation of things	317	287	294
23.2 Rental payments to others	108	65	67
23.3 Communications, utilities, and miscellaneous charges	1,266	941	965
24.0 Printing and reproduction	17	38	39
25.0 Other services	143,314	181,425	173,003
26.0 Supplies and materials	2,176	4,373	4,487
31.0 Equipment	7,643	6,884	7,063
41.0 Grants, subsidies, and contributions	23,908	24,121	25,327
99.0 Subtotal, direct obligations	228,468	271,831	266,800
99.0 Reimbursable obligations	299	1,510	1,549
99.9 Total obligations	228,767	273,341	268,349

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July 1984, Bureau of the Budget
Circular No. 8-11, Revised

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RESEARCH, ENGINEERING AND DEVELOPMENT
<AIRPORT AND AIRWAY TRUST FUND>
PERSONNEL SUMMARY

Identification Code	1993 Actual	1994 Estimate	1995 Estimate
69-8108-0-7-402			
Direct: Total compensable workyears:			
Full-time equivalent	729	711	711
Full-time equivalent of overtime and holiday hours	8	8	8
Reimbursable: Total compensable workers:			
Full-time equivalent employment	6	6	6

SECTION 1

INTRODUCTION TO THE RESEARCH, ENGINEERING, AND DEVELOPMENT PROGRAM

The Federal Aviation Administration (FAA) manages and operates the National Airspace System (NAS). The FAA Research, Engineering and Development (R,E&D) program is intended to prepare the NAS for the rapidly expanding aviation demands of the 21st century, and to ensure both the safety of public air transportation and the fulfillment of national priorities and policy goals. The R,E&D Plan is driven by aviation operational demand, and it actively supports and is consistent with the FAA mission and major administration themes of strengthening transportation's role in supporting the economy; supporting the safety of our transportation systems; strengthening the linkage between transportation and environmental policy; advancing U.S. transportation technology and expertise; and fostering intermodalism. The FAA is also committed to pursuing comprehensive, cooperative research efforts in conjunction with National Aeronautics and Space Administration (NASA), the branches of the Department of Defense, other Federal agencies, (all with the intent of utilizing the capabilities and resources of national laboratories), and with colleges and universities.

The NAS represents a significant national resource. Aviation is a critical component of the national economy, not only in terms of its scope, but as a source of high technology development and leadership, international competitiveness, and linkages to other economic sectors. However, the demands on this system are continuously growing, and other nations are challenging the United States' leadership and market penetration. To this end, the FAA's R,E&D program is an investment in the future that will support the United States' technological leadership and international competitiveness in aviation and related economic sectors. Examples of FAA R,E&D program areas and their economic impacts are displayed in the table below. They provide new markets to industry, create new jobs, and permit technological spin-offs and linkages to other industries.

Economic Benefits

PROGRAM AREAS	ECONOMIC BENEFITS
Air Traffic Control Automation	◆ Fuel cost savings up to \$1 billion annually. ◆ Air carrier aircraft operating costs savings of up to \$2.6 billion annually.
Satellite Navigation and Communications	◆ Up to 200,000 GPS receivers manufactured by 2003; market potential estimated at \$3 billion. ◆ Spin-off applications in automobiles, trucking, railroad, and maritime industries.
Airport Technologies	◆ Airport and runway pavement surface designs to permit U.S. manufacturers to develop larger and heavier new generation aircraft.
Aircraft and Engine Airworthiness	◆ Approximately 100 new generation commercial aircraft annually for the domestic U.S. fleet, bolstering employment and high technology competitiveness. ◆ International market potential estimated at 60% of U.S. aircraft sales.
Explosives Detection Systems	◆ Approximately 300 systems required for U.S. applications; domestic market potential of \$400 million. ◆ Spin-off applications to other industries threatened by terrorist activities.

The importance of aviation to the nation's economy cannot be overstated. Aviation and related industries contribute \$693 billion to the United States economy (6% of GNP), encompassing 8.5 million jobs. Aviation is critical to business travel, tourism, and travel services (a \$47.5 billion industry), as well as aircraft components (\$24.7 billion), cargo and mail transport, and industrial national and international competitiveness. Aerospace is by far the largest exporting industry for the United States, with a 1992 industry trade surplus of \$31 billion. The United States is currently the recognized world leader in aerospace, aviation, and air traffic control. Today, 21 of the country's largest airports are plagued by more than 20,000 hours of delays per year, a problem which could impact 40 airports by the year 2000. Nationally, air traffic delays cost the economy an estimated \$7 billion in passenger delays and \$3 billion in aircraft operating costs. At current trends, these costs will increase 50 percent within 10 years.

Aviation and related industries are also challenged by energy and environmental factors. Currently, 45 percent of air carrier aircraft operating costs are for fuel, a large portion of which is imported oil. While reducing fuel usage is a priority in terms of energy conservation, it is also an increasingly critical environmental issue, based on recent findings relating to nitrogen oxide emissions at high altitudes. Given the projected increases in aviation activity and stringent environmental standards being proposed in Europe and possibly elsewhere, reductions of noise and engine emissions are essential to the viability of the national aviation industry.

The FAA must accommodate the increasing demand on limited airport and airspace capacity, deal with crucial airport security issues, and cope with the unforeseen problems of an aging aircraft fleet.

The FAA's vision for the future air traffic management system is one where safety is maximized and flight is not constrained. The system will face multidimensional challenges. The aviation system is becoming increasingly international in scope, requiring the adoption of a more global outlook. In addition, the future NAS must accommodate a broad spectrum of users -- large commercial aircraft, business jets, single engine general aircraft, rotorcraft, and all types of military aircraft. A new generation of aircraft may include supersonic, even hypersonic aircraft, tilt-rotor, and variable configuration aircraft. Despite the expanded scope of aviation, the system will require the maximum levels of safety, security, and efficiency. Safety means fewer accidents, more fire- and crash- resistant aircraft, and unsurpassed airworthiness of aircraft designs and components. Aircraft, airports, passengers, and goods must be secured from terrorism or criminal activity without undue inconvenience. Air traffic management must be geared towards the efficient flow of all types of aircraft over user-preferred routes and altitudes.

Automation will increasingly impact the controller, pilot, and maintenance technician, relieving people of error-prone, tedious, and time-consuming functions. Controllers will be able to focus more on traffic management and decision making while automated systems execute tactical instructions for traffic separation and control. Similarly, situation displays will be greatly improved, and weather data processing and communications will be automated, enabling the controller to be more proactive and less reactive.

The FAA is requesting funding for an aggressive R&D program to meet the demands on the current and next generation NAS. It involves utilizing FAA-sponsored research, the research of other federal agencies, such as NASA and the National laboratories, and cooperative agreements with academia and public and private sector organizations. The objectives of the R,E&D program are incorporated into the FAA's Capital Investment Plan (CIP), to modernize the air traffic system; they are:

NAS Goals Supported by the R,E&D Plan:

- ◆ Reduce the civil aviation fatality rate from all causes by 10 percent by 2000.
- ◆ Reduce the number of accidents attributable to weather by 20 percent by 2000.
- ◆ Reduce runway incursions by 80 percent by 2005.
- ◆ Ensure that system capacity will meet demand.
- ◆ Reduce weather-related delays by 15 percent by 2005.
- ◆ Accommodate a projected doubling of oceanic air traffic demand by 2010.
- ◆ Provide more user-preferred routes and altitudes to minimize aircraft operating costs.

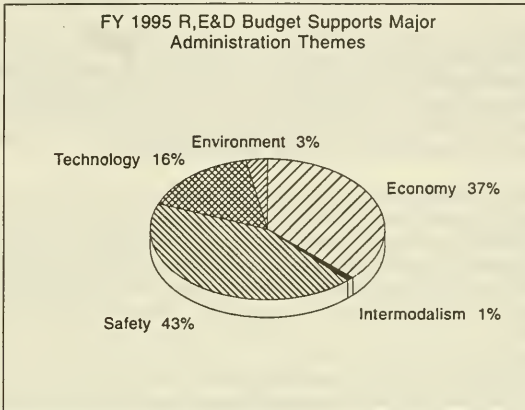
R,E&D-Specific Goals:

- ◆ Reduce the massive costs of pavement expenditure by at least 10 percent by 2010 (currently over \$2 billion is spent annually).
- ◆ Develop advanced aircraft fire safety and crashworthiness technologies by 2005.
- ◆ Develop advanced technologies that increase assurance of aging and in-service aircraft structural integrity and minimize the potential for aircraft catastrophic failure by 2001.
- ◆ Reduce accidents and incident rates attributable to controller, flightcrew, and maintenance crew human error.
- ◆ Field a wide-area differential global positioning system (GPS) to provide satellite-based navigation for all flight phases down to Category I precision approach minima by 1998.
- ◆ Anticipate new threats and develop and implement new security philosophies, technologies, and systems that operate effectively with minimal interference to passengers and carriers.

SECTION 2 THE R,E&D PROGRAM

2.1 RELATIONSHIP TO MAJOR ADMINISTRATION THEMES

The FAA's R,E&D program contributes to achieving the five major administration themes: strengthening transportation's role in supporting the economy; supporting the safety of our transportation systems; strengthening the linkage between transportation and environmental policy; advancing U.S. transportation technology and expertise; and fostering intermodalism. The overall relationship of the budget to these major themes is depicted in the following chart. The contributions of each budget line item to the major administration themes are displayed in Section 3.4, page RED-20.



The enhancement of NAS safety, capacity, reliability, and predictability through the application of advanced technologies will help to maintain the nation's technical leadership and competitiveness. For example:

- ◆ Decreased travel times result in reduced energy consumption, and thus, reduced aircraft operating costs, and ultimately lower transport costs for people and cargo. Those R,E&D projects whose benefits have been evaluated yield annual energy savings between .33 and 1.37 billion gallons of jet fuel, over the time period 1995 to 2015, which equates to approximately \$.22 and \$.93 billion annually. Further, reduced energy consumption results in reduced emissions and contributes to environmental protection.
- ◆ Improved reliability of NAS equipment allows airlines to operate more cost-effectively, reduces time lost by aviation users (individuals and businesses), and enables more efficient intermodal travel and transport. R,E&D projects whose benefits have been evaluated will yield air carrier delay savings of 320,000 to 1.5 million hours annually over the 1995-2015 period. This equates to annual savings of \$520 million to \$2.6 billion in aircraft operating costs, and \$1.2 to \$5.7 billion in passenger time lost.

R,E&D is an ambitious but attainable program that spans nine research thrust areas. The plan is consistent with and contributes to the achievement of the Administration's five major transportation themes, as described below. The R,E&D budget request for Fiscal Year 1995 is \$266.8 million. Consistent with the

FAA's mission, improvements in safety and benefits to the economy represent the largest shares of the budget by major administration theme: 43 percent and 37 percent, respectively. Projects defined as contributing to economic health and productivity are those which support increases to capacity, improve the reliability of the NAS, minimize constraints to aviation, reduce delays, and enable more user-preferred routing. Improvements to airline safety and security also continue to be a high priority of the R,E&D program.

♦ *Strengthening Transportation's Role in Supporting the Economy.* There is little doubt of the significance of aviation to the United States economy. With no new major airports planned in the near term, the FAA must expand the capacity of the current system while maintaining its safety and reducing inefficiencies. Aviation R&D can yield a high rate of return through well-paid, high technology jobs as well as direct benefits to the NAS, in increased productivity, capacity, and safety.

Much of the R,E&D focus on upgrading the NAS involves the development and application of high technology which has use throughout the economy: more intelligent automated systems; higher capacity and more reliable communications; improved surveillance; enhanced collection, processing, and dissemination of weather information; more flexible navigation and landing systems; and improved human/machine interfaces. Aviation capabilities, range and flexibility will also be enhanced by use of satellites, fiber optics, and longer range surveillance and communications.

Research is necessary to accommodate and integrate new technological developments and economic demands that help create markets for U.S. industry, and to equip the FAA to flexibly accommodate and integrate new technological developments and economic demands without constraining market forces. With increasing international competition, the aerospace and aviation industries must be provided with the infrastructure necessary to flourish and maintain competitiveness. The R,E&D Plan utilizes FAA and external resources, such as cooperative agreements with NASA, and other public and private institutions, to further these goals.

♦ *Supporting the Safety of Our Transportation System.* The overall goal in this area is to reduce the probability of accidents and terrorism. The research program is aimed at reducing runway incursions by 80 percent by the year 2005, improving collision avoidance procedures, and providing mechanisms to reduce human and equipment errors. Research relating to engine and aircraft design will improve aircraft airworthiness and crashworthiness and eliminate engine and propulsion system failures, aircraft fires, and aging aircraft safety concerns. Developing the safest, most efficient aircraft systems will translate into global sales for U.S. products. Human factors and aeromedical research projects have been established to reduce human error, to assess injury/fatality patterns and sequences, and to develop measures to reduce the incidence and severity of such patterns.

To maintain public confidence in the NAS, new security technologies are being developed to ensure the highest level of detection and prevention of criminal activities, while minimizing the disruption to air traffic services. Key initiatives include weapons and explosives detection measures, which are critical given the increased use of lightweight, nonmetallic materials in such devices; aircraft hardening techniques to minimize the impact of criminal activity; and airport design measures to minimize the risk and disruption to passengers, aircraft and aviation services.

♦ *Strengthening the Linkage Between Transportation and Environmental Policy.* The expanding role of aviation in transportation has increased the importance of research aimed to protect the environment. Key areas of research include methods to reduce engine emissions and aircraft noise levels, as well as to decrease fuel usage through better traffic management and routes. In addition, more environmentally friendly fuels are being investigated for general aviation (GA) aircraft, which play an important role in small towns and remote areas. Additional research is needed on clean, reliable, and cost effective engine/propulsion concepts for small GA aircraft. We are also undertaking research to develop

certification criteria for new fire extinguishing agents which do not deplete the ozone layer, such as the currently used halons which will no longer be produced after December 31, 1993.

Reducing energy consumption is critical to environmental as well as economic goals. Because a large proportion of aircraft operating costs are for fuel (45 percent for air carriers, 40 percent for air taxi/commuter, 55 percent for GA, aviation is strongly impacted by fuel (especially oil) prices. The R,E&D program includes research on atmospheric data, air traffic models, advanced materials, avionics, and enhanced automation to lead to more efficient routing and lower fuel consumption resulting from inclement weather and terminal area congestion. Finally, alternative aircraft design, engine, and propulsion concepts could significantly reduce aircraft energy requirements. These efforts will contribute toward minimizing the environmental impact of aviation, conserving our limited national resources and lessening U.S. dependence on foreign oil.

Research is also required for the identification of new engine designs to reduce emissions and noise, and thus counteract the potential impact of international standards upon U.S. manufacturers. The aviation community is recommending development of engine/airframe technology that is 4 to 6 decibels quieter than Stage 3 aircraft. Thus, both domestic and international requirements dictate R&D for establishing stricter standards that will allow the United States to manufacture engines with reduced emissions and noise.

♦ *Advancing U.S. Transportation Technology and Expertise.* A primary goal of the R,E&D program is to introduce technology advancements into the NAS without impeding aviation services or market mechanisms. Such technology advancements include new types of aircraft, aircraft avionics, and flight modes. Research is fundamental to long-term economic competitiveness since it supports development of enabling technologies at pre-competitive stages of the R&D process. Aerospace is a key to American technological leadership. Most government and independent organizations compiling "critical technologies" lists have included technologies essential to the aviation industry, such as propulsion technology, simulation, and automated guidance and control. Examples of FAA research activities to accommodate such advances include satellite navigation and communication systems for traffic over oceans or remote areas; more flexible approach control and landing systems; flight profile optimization techniques; and air traffic models and evaluation tools.

♦ *Fostering Intermodalism.* Facilitating intermodal connections will improve the efficiency of transporting people and goods to their final destination, reduce the environmental impact of transportation, and help to optimize energy usage. A key part of the intermodalism improvement effort is developing in the Vertical Flight Program. Vertical Flight capability will relieve congestion in the sky and on the ground at airports by establishing link flights to off-airport destinations, and by shuttling connecting passengers to less-congested airports. Tilt rotor and variable configuration aircraft introduce a tremendous flexibility and a capacity for additional "spoke" flights without using valuable runways at peak times, or requiring additional terminal or airport parking space. Tilt rotor aircraft will also allow connections to other modal linkage points, such as light rail stations, downtown business centers, and satellite parking or shuttle services.

To facilitate intermodal connections, airport planning and design research is geared towards integrating airports into the national transportation network, as well as into the NAS, in particular by more efficiently accommodating traffic demand for all classes of aviation, by planning and designing ground access systems, and by evaluating and optimizing aircraft/terminal/passenger facility compatibility. Research is also planned to optimize airport facility designs to balance the relationships between access roads or rights of way for private and public transportation and parking lots.

Aviation system and terminal capacity planning research is being conducted in the context of national transportation needs so that air transportation is used when it is suitable and economically efficient. Projects aimed at short term reduction of traffic bottlenecks will better ensure choice and competition in

the market and thus the more efficient movement of people and goods. The keys to intermodal transport are the ability to reliably make intermodal connections, and the minimization of bottlenecks. Advanced simulation models will be used to evaluate potential system capacity enhancements and operational traffic flow concepts. The research will include exploiting improved weather data, and traffic modeling for commuter, charter, and business aviation. This will encourage the use of aviation, reduce bottlenecks, and enable more user-preferred routing, thus making air transportation more flexible and attractive, and, by reducing fuel tankering requirements, enable aircraft to carry more cargo.

The table below provides a list of R,E&D program areas describing their key features, benefits, and the program area's relationship to these major administration themes.

RELATIONSHIP OF R,E&D PROGRAMS TO MAJOR ADMINISTRATION THEMES

Program Area	Feature	Benefits	Major Administration Themes				
			Economic Productivity				
			Safety/Security				
			Environmental Protection				
			Technological Leadership				
			Intermodalism				
Air Traffic Management System	Ability to Handle Increased Traffic	- Reduce Operating Costs - Reduce Flight Delays - Accommodate Requested Routes	●	●			
Oceanic ATC Automation	Ability to Handle Increased Traffic	- Reduce Operating Costs - Reduce Flight Delays - Accommodate Requested Routes	●	●		●	
Terminal ATC Automation	Ability to Improve Aircraft Arrival Capacities	- Reduce Operating Costs - Reduce Flight Delays	●	●			
Airport Surface Traffic Automation	Ability to Prevent Runway Accidents/Incidents	Improve Safety on Airport Surface	●	●			
Aviation System Capacity Planning	Ability to Provide Short Term Capacity Improvements	Reduce Impact of Projected Traffic Bottlenecks	●	●			●
Traffic Alert and Collision Avoidance System	Ability to Reduce Chance for Midair Collision	Improve Safety in Air		●			
Vertical Flight Program	Ability to Create More Efficient Linkages With Ground Transportation Modes	- Increase Traffic Flow in Existing Facilities - Relieve Congestion in Airports	●				●
National Simulation Capability	- Ability to Validate Ideas - Ability to Engage in Applied Research	- Reduce Development Risk - Improve Human Factors	●			●	
Aeronautical Data Link	Ability to Fully Use Data Link Capability	- Reduce Miscommunication Between Pilot and Controller - Reduce Congestion in Communication Links	●	●		●	
Satellite Navigation	Ability to Use Satellites in Aircraft Navigation	- Reduce Operating Costs - Reduce Delays	●	●		●	
Terminal Area Surveillance System	Ability to Define Next Generation Sensors	- Increase Terminal Area Capacity - Increase Airport Safety	●	●		●	
Weather Detection/Dissemination	Ability to Reduce Impact of Weather	- Reduce Delays Due to Weather - Reduce Operating Cost	●	●			
Airport Technology	Ability to Improve Airport Planning, Design, Construction and Operation	- Reduce Airport and Airline Operating Costs - Reduce Airport Surface Accidents	●	●		●	●
Aircraft Systems Fire Safety	Ability to Improve Fire Detection and Suppression	Reduce Fire Related Injuries and Deaths		●	●	●	

RELATIONSHIP OF R,E&D PROGRAMS TO MAJOR ADMINISTRATION THEMES

Program Area	Feature	Benefits	Major Administration Themes				
			Economic Productivity				
			Safety/Security				
			Environmental Protection				
			Technological Leadership				
							Intermodalism
Aircraft Crashworthiness	· Ability to Increase Passenger Protection From an Accident	· Reduce Crash Related Injuries and Deaths		●		●	
Propulsion and Fuel Systems	· Ability to Increase the Safety, Reliability, and Durability of Engines and Fuel Systems	· Enhance Airworthiness · Reduce Accidents		●	●	●	
Flight Safety/Atmospheric Hazards Research	· Ability to Improve Methods for Dealing With Ice, Lightning, and Other Hazards	· Reduce Accidents · Develop Criteria for Aircraft Design		●	●	●	
Aging Aircraft	· Ability to Detect, Control and Prevent Aircraft Structural Weaknesses	· Reduce Accidents · Develop Criteria for Aircraft Design		●		●	
Aircraft Catastrophic Research	· Ability to Prevent Catastrophic Aircraft Failures	· Reduce Crash Related Injuries and Deaths · Reduce Hull Losses		●		●	
Fire Research	· Ability to Improve Fire Safety characteristics of aircraft	· Eliminate fire as a cause of fatalities in aircraft accidents		●		●	
Threat Detection	· Ability to Improve Weapons and Explosives Detection	· Eliminate Terrorism · Increase Public Confidence	●	●		●	
National Airspace System Security	· Ability to Evaluate Security Improvement Ideas	· Reduce Security Threats	●	●		●	
Aircraft Hardening	· Ability to Reduce Damage From Explosives	· Reduce Explosive Related Injuries and Deaths · Reduce Hull Losses	●	●		●	
Human Factors and Aeromedical Research	· Ability to Reduce Human Errors or Inefficiencies	· Reduce Human Caused Accidents, Incidents and Inefficiencies	●	●		●	
Environment and Energy	· Ability to Reduce Noise and Air Pollution · Ability to Conserve Fuel	· Improve Air Quality · Reduce Noise · Reduce Fuel Consumption	●		●	●	
Innovative/Cooperative Research	· Ability to Jointly Develop New Ideas	· Stimulate Market Productivity · Increase Technology Injection	●	●	●	●	

2.2 OVERALL BENEFITS

An initial estimate of the benefits associated with the implementation of the R,E&D program has been made; however, quantitative evaluations have been performed for only a subset of the projects. Conservative estimates of these partial benefits yield \$115 billion in constant 1992 dollars accruing between the years 1993 and 2015. Benefits cut across many R,E&D projects. A brief discussion of the benefits in each of the nine thrust areas follows.

1. Capacity and Air Traffic Management

An evaluation of several of the major programs or groups of programs in the area of Capacity and Air Traffic Management has resulted in constant 1990 dollars benefits ranging from \$1 billion to \$3 billion per year from 1993 through 2015. Approximately 58 percent of these benefits are expected to come from reduced aircraft operating costs (e.g., crew utilization, fuel, and maintenance) with the remaining

42 percent from direct time savings to passengers. These benefits were based on conservative estimates of expected capacity gains and the resulting reductions in airline delays at 96 of the largest NAS airports. The savings come from:

- ◆ Reducing arrival delays by reducing restrictions over arrival fixes;
- ◆ Increasing the capacity by reducing arrival dispersions at arrival fixes and final approach;
- ◆ Increasing capacity and efficiency through reduced oceanic separation standards and the establishment of more efficient oceanic tracks; and
- ◆ Increasing airport capacity through new triple-parallel runway operations at eleven airports in the NAS.

The Air Traffic Management system directly impacts capacity and system safety. For example, the R,E&D program is presently developing a comprehensive surface safety system to prevent runway incursions and guard against pilot, controller, and ground vehicle operator errors. This program contributes to national safety, economic growth, and linking transportation and environmental policy.

2. Communications, Navigation, and Surveillance

Enhancements in this area provide the basis for dramatic improvements in system performance, including: improved safety, reduced delays, and increased capacity. The system elements that provide these benefits will contribute to American high technology competitiveness. Communications, navigation, and surveillance are fields which are ideally suited for defense conversion efforts. In particular, the FAA is making use of the Department of Defense's (DOD) as well as NASA's expertise in satellite technology.

The Global Positioning System (GPS), which was originally developed for military needs, will be available for civilian applications. The Satellite Navigation Program may allow the use of the GPS system as a primary means of air navigation. Differential GPS, providing near Category I landing capabilities, could be available at those airports not currently scheduled to receive precision landing equipment. It will also allow general aviation aircraft not equipped with Instrument Landing Systems (ILS) or Microwave Landing Systems (MLS) avionics to use their en route navigation system to make precision landings.

GPS and advanced, high reliability communications systems can potentially be useful in other economic sectors, including other transportation modes.

3. Weather

Hazardous weather is the leading cause of system delay and a major contributing factor to aviation accidents. System capacity is lost or inefficiently distributed when weather restrictions cannot be accurately predicted. R,E&D weather projects, several of which utilize the research of other federal agencies, are geared to more accurately describing and predicting the location, extent, and movement of hazardous weather. This will enable improved flight planning, reduce delays and diversions, and better enable ground crews to operate in hazardous weather (e.g., deicing). Improved oceanic weather forecasting, analysis of upper winds and temperature, and severe weather location will enhance flight planning and traffic management of routes, thus increasing the safety of the system. Timely and accurate weather information is critical to planning fuel and time efficient flight plans, which directly support national energy conservation, environmental protection, and productivity goals.

An evaluation of the FAA's weather R&D initiatives estimated total benefits of at least \$2 billion in constant 1992 dollars through 2006.

4. *Airport Technologies*

Airport technology research is expected to lead to techniques and design standards that will increase the benefits that accrue from the application of Airport Improvement Program (AIP) funds. For example, airport pavement improvements, runway layouts, terminal access and egress designs, and vertiport design standards will increase infrastructure life and system capacity, and foster intermodalism by better integrating airports into the local, regional, or national transportation system.

During the period 1990 to 1999, an estimated \$40.5 billion will be required to provide a safe, efficient, and integrated system of public-use airports under the FAA's National Plan of Integrated Airport Systems (NPIAS). Of this total, 42 percent, or \$17 billion, will be spent on constructing, maintaining, and rehabilitating airport pavements. Research into pavement technology has the potential to provide large economic benefits. Including AIP matching funds, estimates for new and repaired pavements are about \$2 billion per year. New, larger, heavier, but more efficient aircraft designs (e.g., B-777 and MD-12) will require additional runway loading capability. Improvements in pavement life of only 5 percent could eventually save tens of millions of dollars per year from reduced airport repaving costs.

5. *Aircraft Safety*

An important element in the public confidence is the continued safety record of the aircraft fleet. Aviation safety is the FAA's highest priority. This area focuses on developing technologies that maintain or improve aircraft safety in an evolving and demanding aviation environment. Key challenges which the R,E&D Plan are addressing include maintaining the flight integrity and safety of not only an aging air carrier fleet but also new generation aircraft which will employ advanced materials and technologies, research on safer propulsion and fuel systems, and enhancing the crashworthiness and fire resistance of aircraft. Equally, the FAA is investing research funding to prevent or mitigate accidents such as the Sioux City, Iowa (Sioux Gateway Airport) catastrophic engine failure accident that took place in July 1989. The direct costs of this accident, including fatalities, aircraft replacement, and accident investigation totalled over \$300 million.

Aircraft fire safety and crashworthiness research will provide improvements that reduce fatalities, injuries, and hull loss and improve aircraft designs and maintenance and inspection procedures. This, in turn, will increase airline profitability and reduce costs to the public.

More efficient use of non-destructive testing of airframes could produce benefits on the order of \$40 million per year. A similar improvement in the efficiency of engine maintenance could achieve \$20 million per year in benefits. An additional \$30 million per year could accrue due to the use of more effective inspection and avoiding any major air safety accidents through failure of airframe or engine. Research in aircraft fire safety might save about 30 to 35 fire fatalities per year in otherwise survivable accidents, and about 135 fatalities worldwide.

6. *Security*

Because of its high visibility, civil aviation continues to be an attractive target for terrorists or individuals with other criminal motives. The threat level has escalated from hijacking in the mid 70's to terrorist activities aimed at disrupting or destroying specific air transportation elements. The tragedy that befell the 270 victims of Pan Am Flight 103 over Lockerbie, Scotland, had an estimated direct cost of \$700 million, which does not include aviation industry revenue losses due to public loss of confidence.

Even the threat of attack on a specific target is sufficient to cause significant disruptions and economic impact. For example, the Persian Gulf war caused a reduction of consumer confidence in the security of the system. As a result, scheduled air miles for domestic flights decreased by 5.2 percent, with

international flight miles on United States carriers decreasing by 16.2 percent. In the face of this kind of threat, continued public confidence in the security of the aviation system in general, and U.S. airports and carriers in particular, is key to the continued viability of these services and the resulting economic benefits.

The FAA initiatives in system security are designed to achieve benefits through the development of systems that prevent or deter hijacking and sabotage. Some of this research utilizes the Department of Defense's expertise in security techniques. An initial assessment of this area indicates benefits on the order of \$40 million per year from the ability to reduce the cost of airport security services, while providing increased protection. As technology becomes increasingly automated, the need for manpower decreases. The benefit of avoiding both the direct and indirect costs of just one major incident would be \$80 million per year.

7. *Human Factors and Aviation Medicine*

While the outline of the future system and associated new technologies are fairly clear, a major design challenge in realizing the projected benefits centers on the ability of people to effectively utilize the new systems and capabilities. Thus, integrating human factors research into all areas of the R,E&D Plan is crucial. For example, when new and higher levels of automation are introduced into the cockpit and in ground systems, the roles of the pilot, controller, and technician will change dramatically. Human factors research is required to ensure that this transition is affected smoothly and safely. In the cockpit, as on the ground, new technologies will introduce digital and analog signal mixes, graphics displays, and procedures that will alter the nature of displayed information and actions and responsibilities of pilots and controllers.

Testing and evaluating these new concepts, systems, and equipment will require greater attention to human factors than even before. Research will need to address the interaction of the pilot with the aircraft systems, the controller with the air traffic management system, and the interaction between pilot and controller. Training facilities and approaches must be developed to handle the introduction and operation of new, sophisticated equipment and procedures. This research area is directed to ensuring that the design effectively integrates the human factor and the machine to realize the expected benefits. In addition to FAA expertise, the R,E&D Plan includes cooperative agreements with NASA to study human factors in flight operations, to assess cockpit design concepts, and other collaborative efforts. Efforts are underway to establish similar cooperative efforts with the Defense Department.

8. *Environment and Energy Conservation*

The primary focus in this research area is on reducing aircraft noise and engine emissions. Currently, nearly 3 million Americans live in areas significantly impacted by airplane noise. While noise reduction measures have not constrained all airports, in others, the potential capacity has been reduced by 30 percent. R,E&D projects are geared to both developing noise abatement measures which would least constrain aviation, and developing models to assess the noise impact of various strategies. A cooperative agreement with NASA will evaluate engine design parameters, advanced materials, and noise control technologies.

In order to minimize the impact to the air of aircraft engines, R,E&D efforts are evaluating energy conservation measures, investigating new engine and fuel concepts, and modeling these concepts to assess their emissions and the resultant atmospheric impact. An assessment of the benefits associated with these projects is underway. The assessment of noise reduction strategies will be built around the value of meeting local noise restrictions with the least impact on airport capacity and system delays. Finding methods to reduce aircraft engine emissions will yield significant benefits, such as improving the quality of life for people living close to the airport environment. Given that many nations are imposing aircraft emission standards, quieter and cleaner burning engines will increase U.S. competitiveness in the global market.

9. *Innovative and Cooperative Research*

The objective of the innovative and cooperative research program is to provide the FAA with flexible and responsive mechanisms to access forefront research of universities, government laboratories, and the private sector.

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The Innovative and Cooperative Program allows government agencies, laboratories, and universities to jointly develop research programs and share the results. This maximizes the utilization of our resources and eliminates duplication of effort. Through Aviation Research Grants and Centers of Excellence, Cooperative Research and Development Agreements (CRDA's), Small Business Innovative Research contracts, and the Independent Research and Development (IR&D) program, the FAA utilizes a wide range of expertise from other federal agencies, academia, and the private sector and encourages broad community participation in the R,E&D Plan.

In order to maximize the return on the investment in our National laboratories and Government research agencies, research is shared throughout Federal agencies such as the Departments of Defense (DOD), Energy (DOE), Commerce (DOC) and Agriculture. FAA has agreements with NASA, DOD, DOE, and DOC, and is also engaged in discussions with Air Force laboratories, Navy, Army, Advanced Research Project Agency (ARPA), and the National Institute of Science and Technology (NIST). The Technology Reinvestment Program (TRP) is also supported by the FAA.

The Aviation Research Grants program currently comprises over 60 grants. The FAA grants focus on a range of technologies and disciplines including communications, navigation and surveillance, aviation security technology, air traffic control and automation, analytical studies and simulation, and human factors, aircraft and airport safety research, and aviation medicine. Other FAA special emphasis areas are identified in the FAA's R,E&D Plan and specifically selected as Centers of Excellence by the FAA Administrator.

Technology Transfer is the process by which knowledge, facilities, or capabilities developed by Federal laboratories or agencies are transferred to the private sector to expand the U.S. technology base and to maximize the return on federally funded R,E&D. Technology transfer is a critical process to help the private sector meet the challenges of the changing global economic environment. The Cooperative Research and Development Agreement (CRDA) is the vehicle for formalizing technology transfer agreements. The FAA has over 50 CRDA's in process. The subject areas include aviation weather information systems, radar sensors, data communication systems, integration of flight management capabilities for ATC, and use of composites for maintenance and structural repair of aircraft. Successful results of these technology transfer efforts go directly into the mainstream of the private sector for commercialization.

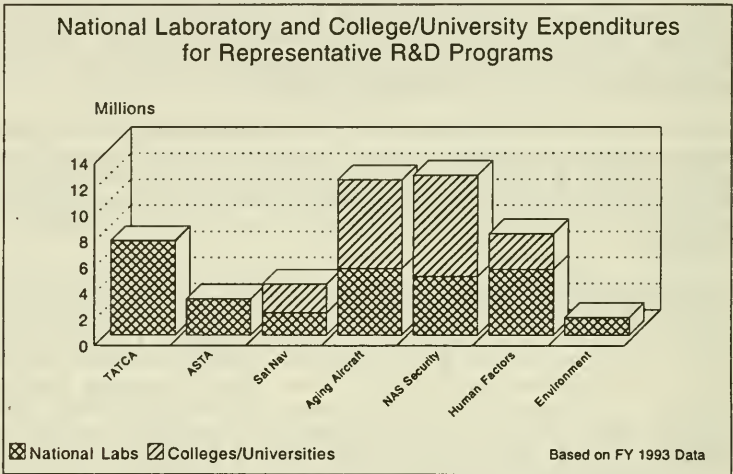
The FAA and NASA have several joint aerospace research programs which make use of two NASA facilities, the Ames and Langley Research Centers. These laboratories account for approximately \$7 million in annual developmental research expenditures. Cooperative R&D will continue under memoranda of understanding and project tasks established in human factors, severe weather, cockpit/ATC integration, air worthiness, environmental compatibility, aging aircraft technology, and program support. The FAA's R,E&D program further benefits from NASA by leveraging NASA's resources toward common NASA/FAA initiatives.

The Transportation Research Board stimulates research in all areas of the NAS and disseminates the results through forums, conferences and workshops. The Board is a vital link with the National Academy of Sciences for aviation related issues.

The University Fellowship Research Program allows participants to do in-depth studies in FAA facilities and laboratories under the regimen of formal graduate course work, particularly in areas related to air traffic control systems.

The Joint University Program is now included in the Aviation Research Grants Program for Air Transportation Research. It is a coordinated set of three grants, jointly sponsored by NASA Langley Research Center and the FAA. The grant recipients are the Massachusetts Institute of Technology, Ohio University, and Princeton University. This program helps recruit talented engineers and scientists into the area of new aerospace technology and thus encourages further research and innovation in future United States technologies.

The goals of this program are consistent with the aeronautical interests of both NASA and the FAA in furthering the safety and efficiency of the National Airspace System. The following graph depicts several of the major R,E&D Plan programs as a representative cross-section of annual expenditures to National laboratories and universities:



2.3 SUMMARY

The FAA's R,E&D program contributes significantly to five major administration themes (economic growth, safety, environmental protection, technological leadership, and intermodalism). The economic benefits of those portions of the R,E&D program evaluated far outweigh its cost. In addition, the program has far reaching impacts in other industries in terms of stimulating new economic growth, jobs, and technological spin-offs; and in promoting American competitiveness.

The R,E&D program underpins the future Capital Investment Plan (CIP) by addressing new and emerging technologies for inclusion into the NAS, providing for technology transfer to other areas, and permitting the FAA to explore and develop new ideas. This will lead to further cooperative agreements and sharing of technologies with National laboratories, industry, other federal agencies, and institutions of higher learning to avoid duplication of efforts and unnecessary expenditure of valuable R,E&D funds.

SECTION 3

THE FY 1995 R,E&D BUDGET REQUEST

3.1 INTRODUCTION

In order to realize the significant potential benefits and contributions to priorities discussed in Section 2, an 5.0 percent increase over the FY 1994 Congressional Budget Submission is requested for FY 1995. The total FY 1995 R,E&D budget of \$266.8 million will enable FAA to meet the broad objectives and requirements discussed in the FAA Strategic Plan.

3.2 BUDGET ACTIVITY SUMMARY

Budget Activity	FY 1995 Request
1 R,E&D Management and Infrastructure *	\$ 9,673,000
2 Capacity and Air Traffic Management Technology	81,901,000
3 Communications, Navigation and Surveillance	39,472,000
4 Weather	2,909,000
5 Airport Technology	9,443,000
6 Aircraft Safety Technology	51,004,000
7 System Security Technology	36,604,000
8 Human Factors and Aviation Medicine	25,329,000
9 Environment and Energy	5,429,000
10 Innovative/Cooperative Research	5,036,000
Total FY 1995 Request	\$266,800,000

* Formerly Management and Analysis

3.3 MAJOR INCREASES FROM FY 1994

The following R,E&D technical programs have been increased for FY 1995 by over \$1 million from the FY 1994 Congressional Submission.

Program	FY 1995 Increase
Air Traffic Management Technology	** 4,691,000
Terminal ATC Automation (TATCA)	2,051,000
System Capacity, Planning, and Improvement	1,171,000
Cockpit Technology	1,362,000
Communications	4,588,000
Surveillance	2,217,000
Weather	1,001,000
Airport Technology	1,934,000
Advanced Materials/Structural Safety	1,133,000
Propulsion and Fuel Systems	1,652,000
Flight Safety/Atmospheric Hazards	2,070,000
Fire Research	5,028,000
Aeromedical Research	*** 1,797,000

** Reflects movement of Operational Traffic Flow Planning from Modeling and Simulation.

*** Reflects realignment of ongoing tasks from other budget lines within Budget Activity 8.

3.4 RELATIONSHIP OF R,E&D BUDGET TO MAJOR ADMINISTRATION THEMES

The R,E&D budget supports the 5 major administration themes, with primary emphasis on the safety and efficiency (economic growth) of the NAS. The contributions of each R,E&D budget line item to the major administration themes are displayed in the following table.

Relationship of R,E&D Budget to Major Administration Themes

(in Thousands of Dollars)

Budget Item #	Project Title	Economy	Safety/ Security	Environment	Technology	Inter-modalism	Total
1a	R,E&D Plans and Programs	1,742	2,131	0	0	0	3,873
1b	Technical Laboratory Facility	2,610	3,190	0	0	0	5,800
2a	Air Traffic Management Technology	8,180	2,883	0	0	0	11,063
2b	Oceanic Automation Program	8,580	1,281	0	1,049	0	10,910
2c	Terminal Air Traffic Control Automation (TATCA)	13,705	3,537	0	0	0	17,242
2d	Runway Incursion Reduction/Tower Automation	2,675	5,460	0	0	0	8,135
2e	System Capacity, Planning and Improvements	9,556	1,671	0	0	1,103	12,330
2f	Cockpit Technology	0	7,613	0	0	0	7,613
2g	Vertical Flight Program	1,831	0	0	0	1,832	3,663
2h	Modeling, Analysis, and Simulation	7,814	1,263	0	838	0	9,915
2i	Future Airway Facilities Technology	1,030	0	0	0	0	1,030
3a	Communications	11,957	4,051	0	3,325	0	19,333
3b	Navigation	10,586	1,600	0	2,736	0	14,922
3c	Surveillance	3,589	1,132	0	496	0	5,217
4a	Weather	838	2,071	0	0	0	2,909
5a	Airport Technology	2,071	2,967	0	4,193	212	9,443
6a	Aircraft Systems Fire Safety	0	2,752	1,519	1,066	0	5,337
6b	Advanced Materials/Structural Safety	0	2,245	0	3,000	0	5,245
6c	Propulsion and Fuel Systems	0	1,553	665	2,218	0	4,436
6d	Flight Safety/Atmospheric Hazards Research	0	2,279	691	2,326	0	5,296
6e	Aging Aircraft	0	11,706	0	11,251	0	22,957
6f	Aircraft Catastrophic Failure Prevention Research	0	1,894	0	811	0	2,705
6g	Fire Research	0	1,005	0	4,023	0	5,028
7a	Explosives and Weapons Detection	2,356	18,962	0	2,357	0	23,675
7b	NAS Security	297	1,581	0	99	0	1,977
7c	Aviation Security Human Factors	469	2,499	0	156	0	3,124
7d	Aircraft Hardening	783	6,262	0	783	0	7,828
8a	Flightdeck Human Factors	0	6,890	0	0	0	6,890
8b	Air Traffic Control Human Factors	1,550	4,648	0	0	0	6,198
8c	Airway Facilities Maintenance Human Factors	584	1,749	0	0	0	2,333
8d	Flightdeck/ATC System Integration	550	1,649	0	0	0	2,199
8e	Aircraft Maintenance Human Factors	394	1,185	0	0	0	1,579
8f	Aeromedical Research	1,762	4,368	0	0	0	6,130
9a	Environment and Energy	1,035	0	3,755	639	0	5,429
10a	Innovative/Cooperative Research	915	1,351	415	2,339	16	5,036
Total		97,459	115,428	7,045	43,705	3,163	266,800
Percentage		37%	43%	3%	16%	1%	100%

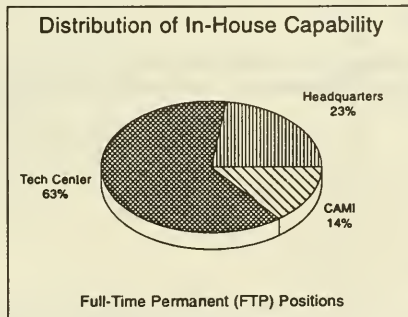
3.5 IN-HOUSE CAPABILITY

The ability of the FAA to reach its R,E&D milestones and objectives is dependent upon the recruitment and retention of qualified personnel. To ensure continuing success in the development of state-of-the-art technologies (and their subsequent implementation into the National Airspace System) requires a cadre of highly trained, multi-disciplined specialists to support these programs. These experts, with knowledge in engineering, computer science, mathematics, aviation medicine, and other technical fields, are critical to future progress of the R,E&D program. In addition to achieving both broad and specific FAA objectives, the R,E&D program also contributes to improvements in international aviation. The R,E&D work force for FY 1995 remains at 645 full-time permanent (FTP) positions.

There are 147 FTP positions at Washington Headquarters. These positions are directly concerned with increasing the productivity and efficiency of today's human resources and capital investments and with developing the system concepts and components to meet future requirements for increased airport/airway system capacity and safety. System development personnel are actively involved in the planning, direction, and conduct of system development research in the areas of capacity and air traffic management (ATM) technology; communications, navigation and surveillance; weather; and human factors research. Major functions include the development of highly technical programs; the coordination of these programs with domestic and international organizations; and with providing technical expertise in support of critical capacity and safety efforts.

A total of 405 FTP positions are located at the FAA Technical Center located in Atlantic City, New Jersey. This Center conducts tests and evaluations of projects in all phases of air navigation, air traffic control, airport design and development, aircraft safety, and aircraft/airport security. Projects include expanded efforts in airport security technology development and demonstration, structural integrity life management and nondestructive inspection techniques for aging aircraft, and human factors research relating to airway facilities maintenance. Operational test and evaluation personnel conduct research that encompasses capacity and ATM technology, communications, navigation and surveillance, airport technology, aircraft safety and system security technologies, human factors, and innovative/cooperative research.

The Civil Aeromedical Institute (CAMI), located in Oklahoma City, Oklahoma, currently has 93 FTP positions. CAMI is responsible for expanding FAA knowledge of the biomedical factors contributing to control and/or flight errors and incidents within the NAS and for developing control methods for these factors where possible. The aeromedical research function, is primarily directed toward human factors and aviation medicine.



3.5 SUMMARY OF PERSONNEL REQUIREMENTS

	FY 1993		FY 1994		FY 1995
	Actual	Change	Estimate	Change	Request
FTP Positions:					
Washington Headquarters	147	0	147	0	147
Technical Center	405	0	405	0	405
CAMI	<u>93</u>	<u>0</u>	<u>93</u>	<u>0</u>	<u>93</u>
Total Positions	645	0	645	0	645
Full Time Equivalents (FTE)	710	0	692	0	692
Personnel Compensation (K\$)					
and Benefits	45,408	+2,679	48,087	+1,601 ¹	49,688
Travel	3,936	+524	4,460	+257 ²	4,717
Permanent Change of Station	375	+775	1,150	0	1,150
Other Objects	<u>3,277</u>	<u>-331</u>	<u>2,946</u>	<u>+2,443³</u>	<u>5,389</u>
Total Funding	\$52,996	+3,647	\$56,643	+4,301	\$60,944

¹Nondiscretionary increases in personnel compensation and benefits total \$1.6 million and are required to finance: (1) + \$316 thousand for annualized wage adjustments effective for only part of FY 1994 as well as anticipated wage adjustments for FY 1995; (2) + \$418 thousand for annualization of 1994 locality pay; (3) + \$595 thousand for the cost of the FY 1995 pay raise; and (4) + \$272 thousand associated benefits.

²The \$257 thousand increase in travel accounts for inflation and a modest growth associated with the Satellite Navigation, TATCA, and ASTA programs.

³The additional \$2.4 million requested in other objects for FY 1995 is to provide for inflation, repair, maintenance, equipment, and training including support for various test facilities at the FAA Technical Center. The test facilities include laboratories for drop testing, structural testing, engine fuel testing, fire testing, and the new 27,000 square foot Aviation Security Laboratory opened in FY 1993.

3.6 GENERAL COMMENT

The narrative justifications are presented in a format which includes a basis for request, the program request, benefits, major milestones, and funding summaries. The milestones provided beyond 1995 are shown for planning purposes only.

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAYS TRUST FUND)
FISCAL YEAR 1995**

Comparative Summary of Appropriation
(Dollars in Thousands)

		FY 1994 Approp	FY 1995 Request	Difference
		-----	-----	-----
1	R,E&D Management and Infrastructure	\$ 10,498	\$ 9,673	\$ -825
	R,E&D Plans and Programs	7,012	3,873	-3,139
	Technical Laboratory Facility	3,486	5,800	2,314
2	Capacity and Air Traffic Management Technology	\$ 76,939	\$ 81,901	\$ 4,962
	Air Traffic Management Technology	6,372	11,063	4,691*
	Oceanic Automation Program	11,449	10,910	-539
	Terminal Air Traffic Control Automation (TATCA)	15,191	17,242	2,051
	Runway Incursion Reduction/Tower Automation	9,981	8,135	-1,846
	System Capacity, Planning and Improvements	11,159	12,330	1,171
	Cockpit Technology	6,251	7,613	1,362
	Vertical Flight Program	3,222	3,663	441
	Modeling, Analysis, and Simulation	12,814	9,915	-2,899*
	Future Airway Facilities Technology	500	1,030	530
3	Communications, Navigation and Surveillance	\$ 38,675	\$ 39,472	\$ 797
	Communications	14,745	19,333	4,588
	Navigation	20,930	14,922	-6,008
	Surveillance	3,000	5,217	2,217
4	Weather	\$ 1,908	\$ 2,909	\$ 1,001
5	Airport Technology	\$ 7,509	\$ 9,443	\$ 1,934
6	Aircraft Safety Technology	\$ 43,175	\$ 51,004	\$ 7,829
	Aircraft Systems Fire Safety	5,697	5,337	-360
	Advanced Materials/Structural Safety	4,112	5,245	1,133
	Propulsion and Fuel Systems	2,784	4,436	1,652
	Flight Safety/Atmospheric Hazards Research	3,226	5,296	2,070
	Aging Aircraft	24,655	22,957	-1,698
	Aircraft Catastrophic Failure Prevention Research	2,701	2,705	4
	Fire Research **	0	5,028	5,028
7	System Security Technology	\$ 35,930	\$ 36,604	\$ 674
	Explosives and Weapons Detection	22,829	23,675	846
	NAS Security	2,454	1,977	-477
	Aviation Security Human Factors	2,845	3,124	279
	Aircraft Hardening	7,802	7,828	26
8	Human Factors and Aviation Medicine	\$ 29,256	\$ 25,329	\$ -3,927
	Flightdeck Human Factors	7,563	6,890	-673
	Air Traffic Control Human Factors	7,192	6,198	-994
	Airway Facilities Maintenance Human Factors	3,692	2,333	-1,359
	Flightdeck/ATC System Integration	4,342	2,199	-2,143
	Aircraft Maintenance Human Factors	2,134	1,579	-555
	Aeromedical Research ***	4,333	6,130	1,797
9	Environment and Energy	\$ 5,385	\$ 5,429	\$ 44
10	Innovative/Cooperative Research	\$ 4,725	\$ 5,036	\$ 311
TOTAL		\$ 254,000	\$ 266,800	\$ 12,800

* Reflects movement of Operational Traffic Flow Planning.

** This program includes a number of technical thrusts previously managed within the aircraft Systems Fire Safety Program.

*** Reflects realignment of ongoing tasks from other budget lines within Budget Activity 8.

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995

Individual Budget Item/Resources/Page Reference

<u>Budget Item</u>	<u>Amount</u> <u>(\$000)</u>	<u>Page</u> <u>No.</u>
1. R,E&D Management and Infrastructure		
a. R,E&D Plans and Programs	3,873	RED-28
b. Technical Laboratory Facility	5,800	RED-29
Total	<u>\$9,673</u>	
2. Capacity and Air Traffic Management Technology		
a. Air Traffic Management Technology	11,063	RED-30
b. Oceanic Automation Program	10,910	RED-32
c. Terminal Air Traffic Control Automation (TATCA)	17,242	RED-34
d. Runway Incursion Reduction/Tower Automation	8,135	RED-36
e. System Capacity, Planning and Improvements	12,330	RED-38
f. Cockpit Technology	7,613	RED-40
g. Vertical Flight Program	3,663	RED-42
h. Modeling, Analysis, and Simulation	9,915	RED-44
i. Future Airway Facilities Technology	1,030	RED-46
Total	<u>\$81,901</u>	
3. Communications, Navigation and Surveillance		
a. Communications	19,333	RED-48
b. Navigation	14,922	RED-50
c. Surveillance	5,217	RED-52
Total	<u>\$39,472</u>	
4. Weather		
a. Weather Program	2,909	RED-54
Total	<u>\$2,909</u>	
5. Airport Technology		
a. Airport Technology	9,443	RED-56
Total	<u>\$9,443</u>	

	Amount (\$000)	Page No.
6. Aircraft Safety Technology		
a. Aircraft Systems Fire Safety	5,337	RED-58
b. Advanced Materials/Structural Safety	5,245	RED-60
c. Propulsion and Fuel Systems	4,436	RED-62
d. Flight Safety/Atmospheric Hazards Research	5,296	RED-64
e. Aging Aircraft	22,957	RED-66
f. Aircraft Catastrophic Failure Prevention Research	2,705	RED-68
g. Fire Research	5,028	RED-70
Total	<u>\$51,004</u>	
7. System Security Technology		
a. Explosives and Weapons Detection	23,675	RED-72
b. NAS Security	1,977	RED-74
c. Aviation Security Human Factors	3,124	RED-76
d. Aircraft Hardening	7,828	RED-78
Total	<u>\$36,604</u>	
8. Human Factors and Aviation Medicine		
a. Flightdeck Human Factors	6,890	RED-80
b. Air Traffic Control Human Factors	6,198	RED-82
c. Airway Facilities Maintenance Human Factors	2,333	RED-84
d. Flightdeck/ATC System Integration	2,199	RED-86
e. Aircraft Maintenance Human Factors	1,579	RED-88
f. Aeromedical Research	6,130	RED-90
Total	<u>\$25,329</u>	
9. Environment and Energy		
a. Environment and Energy	5,429	RED-92
Total	<u>\$5,429</u>	
10. Innovative/Cooperative Research		
a. Innovative/Cooperative Research	5,036	RED-94
Total	<u>\$5,036</u>	
TOTAL, R,E&D REQUEST	\$266,800	

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 1a

R,E&D Plan No: APPENDIX B

Program Title: R,E&D Plans and Programs

Amount: \$3,873,000

Basis for Request:

Provides in-house and contractual resources required for the planning coordination, control, and execution of FAA's Research, Engineering and Development (R,E&D) program. This project supports development, update, and tracking of all R,E&D program plans and schedules in addition to the formulation, presentation, and execution of the R,E&D budget.

This project also responds to the Aviation Safety Research Act of 1988 by providing the resources necessary to prepare the annual R,E&D Plan.

Note: Requirements for the Technical Laboratory Facility have been established as a separate budget item for the FY 1995 submission. These requirements, which are described in budget item 1b, were formerly included in item 1a.

Program Request:**R,E&D Plans and Programs**

In FY 1995, program control processes and automated support systems will be further refined and integrated into R,E&D planning and budgeting. Program evaluations and analysis will be conducted across all project areas to minimize future risk of similar research being conducted in more than one program area or appropriation. This work will also provide continuity between complimentary R,E&D projects and those leading to production systems in the CIP.

Specific products will include the publication of the annual R,E&D Plan (with integrated accomplishments from the previous year), technical and engineering schedule support for the R,E&D program, budget submissions, responses to Congressional inquiries,

and financial reports (including the 5-year plan, obligation data, fiscal program, procurement plans, and reprogramming actions).

Coordination with other countries, to ensure that international aviation concerns are addressed in the R,E&D program planning process, will also be conducted.

R,E&D Advisory Committee

The R,E&D Advisory Committee provides the agency with reports, advice, and recommendations regarding the needs, objectives, plans, approaches, contents, and accomplishments with respect to the aviation research program. The committee considers aviation research needs in support of the FAA mission and reviews such areas as airport capacity, system safety, aircraft safety, aeromedical research, aviation security, and future ATC technology.

Benefits:

Ensures a fully coordinated and effective R,E&D program consistent with agency objectives and policy. Significant external input from the aviation community is coordinated through the R,E&D Advisory Committee ensuring that domestic aviation concerns are fully recognized in the R,E&D planning process.

FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
6,815	7,012	3,873

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995

Budget Item No: 1b

R,E&D Plan No: APPENDIX B

Program Title: Technical Laboratory Facility

Amount: \$5,800,000

Basis for Request:

R,E&D projects require Air Traffic Control (ATC) Laboratories to support the development and evaluation of new systems into the ATC environment. The laboratories require the full complement of ATC systems in order to provide a realistic test bed that can be used to emulate any combination of field configurations. The laboratories must operate and maintain systems in all ATC and related areas including: En Route, Oceanic, Terminal, Flight Service Station, Scan Radars, and Communications.

R,E&D projects require a laboratory to perform human-in-the-loop simulations, measure human performance, and evaluate human factors issues. This Human Factors Laboratory facility must be integrated with all ATC systems and laboratories.

R,E&D projects require simulation support in order to test and evaluate planned future ATC scenarios. An adequate simulation driver must be operated and maintained to provide this simulation support.

R,E&D projects require a fleet of specially instrumented aircraft in order to test and evaluate navigation and airborne systems (e.g. Microwave Landing System (MLS), Traffic Alert and Collision Avoidance System (TCAS), etc.). These "Flying Laboratories" must be modified and configured to support the varying requirements of each system being tested.

Funding is required for contractual hardware and software maintenance, software licensing fees, and computer operators associated with the Technical Center multi-user facilities. For the aircraft fleet, funding is required for

special instrumentation and modifications. The costs for operating and maintaining the facilities are prorated across the R,E&D, F&E, and Operations appropriations.

Program Request:

The FAA Technical Center facilities require yearly operation and maintenance funding to continue support to R,E&D projects. The \$2.3 million growth in FY 1995 is due to the new Human Factors laboratory facility that opened in FY 1993 and increased research using the Target Generator simulator in support of air traffic control automation programs.

Benefits:

The FAA Technical Center facility supports the development, and evaluation of R,E&D projects into the ATC environment. Present and planned future R,E&D systems requiring use of the Laboratories include: Terminal ATC Automation, Oceanic Development Facility, Automatic Dependent Surveillance, Automated En Route ATC (AERA) Concepts Human Factors, Traffic Management System, Mode S and Data Link Enhancements, General NAS (GNAS) sector/Maintenance Control Console (MCC), NAS Performance Capacity (NASPAC). Specific objectives and milestones are contained within each individual project that makes use of the FAA Technical Center facility.

FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
3,486	3,486	5,800

RED-29

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995

Budget Item No: 2a

R,E&D Plan No: 021-110

Program Title: Air Traffic Management Technology

022-150

025-120

Amount: \$11,063,000

Basis for Request:

As the demand for aviation services continues to increase at record rates, the current method for managing the air traffic control (ATC) system is quickly becoming saturated. This is resulting in increased delays for all aviation system users, and places a significant economic burden on the nation in terms of both higher operating costs and inefficient use of fuel. A national need exists to develop ATC flow management capabilities that will: (1) enhance ATC flow management efficiency and effectiveness; and (2) more fully utilize existing system capacity.

Program Request:Advanced Traffic Management System (ATMS)

The FY 1995 request will continue development of Automated Demand Resolution (ADR) enhancements, which will automatically generate alternative flow management solutions to system congestion conditions. The planned enhancements will focus upon systemwide solutions that integrate the dynamic effects of en route airspace, weather, and the availability of military special use airspace. Full ADR functionality is scheduled to be operational in FY 1998.

The FY 1995 request will also support the continued development of enhancements to the Strategy Evaluation (SE) function and the Dynamic Special Use Airspace (DSUA) Function.

Flight Operations/Air Traffic Management Integration (FTMI)

The FY 1995 request will continue the development of flight operations procedures and standards to exploit existing Flight Management System (FMS) capabilities to improve airspace utilization and flight efficiency for both oceanic and terminal operations. This request also supports development of operational requirements for the next generation FMS, ensuring its compatibility with current and future Air Traffic Management (ATM) systems.

Possible inclusion of the airlines' Aeronautical Operations Control (AOC) center in the ATM/FMS operations structure for enhanced operations in

oceanic airspace will be analyzed. Real-time simulations and flight trials of scenarios incorporating an ATM/FMS/AOC concept will be conducted to determine the benefits of enhanced operations in oceanic airspace. Procedures and flight standards for enhanced oceanic operations will be completed in FY 1999.

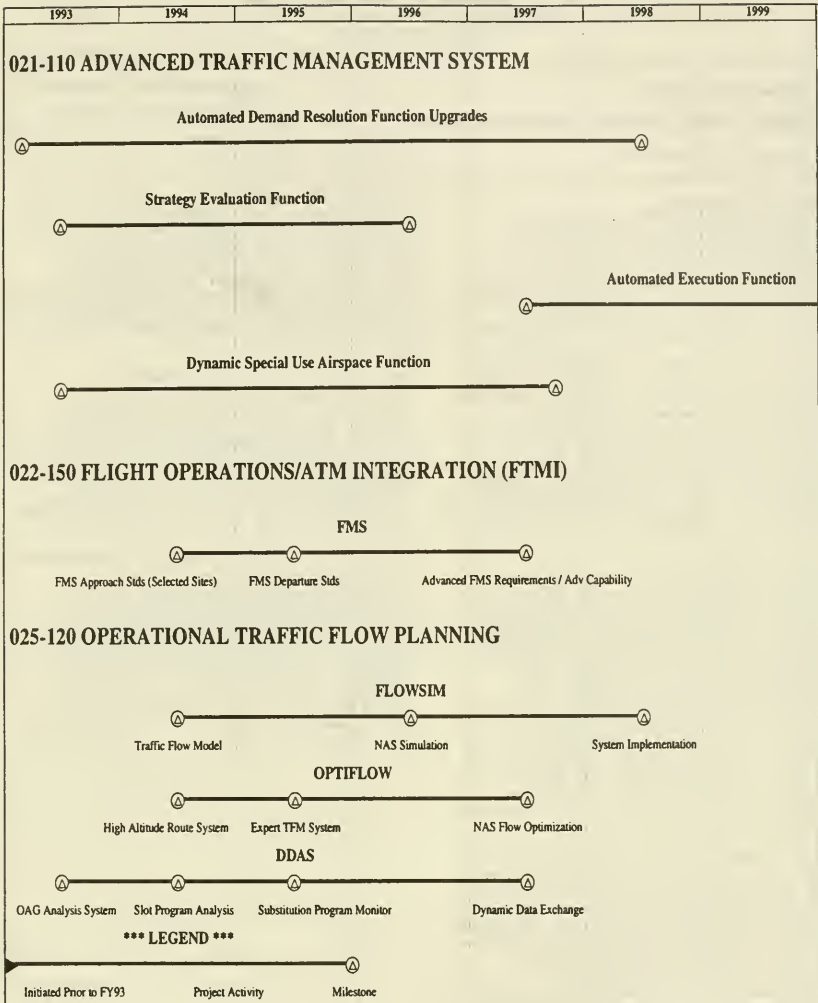
Development of flight procedures and standards for FMS-guided departures in FY 1995 and work on national standards for implementation of FMS-guided terminal operations in FY 1997 will continue.

Operational Traffic Flow Planning (OTFP)

In FY 1995, improvement of the FAA's national-level Air Traffic Flow Management and Planning continues. The OTFP Program produces real-time decision support tools for the Air Traffic Control System Command Center (ATCSCC). OTFP brings on-line collaboration with airlines, stored Air Traffic Management knowledge and expertise, and automated aids for managing user-preferred route requests to the on-duty National Traffic Management Officer. The OTFP Program, which is developing models with direct application to Air Traffic Management technology, was moved into this budget line for 1995 (formerly in 2h, Modeling and Simulation).

Benefits:

The enhanced capabilities of the ATC flow management system are projected to reduce delays by 5 to 7 percent, with corresponding reductions in user operating costs and reduced fuel usage. The completed ATMS program is projected to provide a total of \$12.1 billion in benefits through the year 2015. The FTMI program provides economic and safety benefits by both enhancing the precision and efficiency of aircraft operation and reducing the distractions associated with pilot/controller verbal communications. OTFP benefits NAS users by providing ATCSCC Specialists the automated means to manage day-to-day operations more efficiently. OTFP actively involves airlines in the TFM process to jointly resolve imbalances between demand and capacity.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
4,315	10,372	11,063

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 2b

R,E&D Plan No: 021-140

Program Title: Oceanic Automation Program

Amount: \$10,910,000

Basis for Request:

This program improves oceanic air traffic management and control by providing: satellite data link capability; automatic dependence surveillance; advanced automation to enhance separation standards; flexible track system; automated traffic planning; and testing capability.

These improvements are needed in the oceanic environment to keep pace with increased oceanic air traffic (and the resulting increased controller workload); to insure conformance with international requirements for communications, navigation, and surveillance; and to provide a testing capability that ensures a safe and efficient integration of new oceanic automation technologies.

Program Request:

The Oceanic Automation System (OAS) program combines the three Oceanic R,E&D projects from the FY 1994 Budget (Oceanic Traffic Planning, Automatic Dependent Surveillance, and Oceanic Air Traffic Control Automation) into a single program for FY 1995. The consolidation of these projects provides a total systems engineering approach to oceanic automation. In FY 1995, development will continue on oceanic communication, automatic dependent surveillance and navigation capabilities to improve oceanic air traffic capacity and efficiency without degradation to safety.

The FY 1995 Oceanic Automation System will: install Track Advisory System at New York Center and Anchorage Center, thereby completing the establishment of the Track Advisory System at all three oceanic sites; complete the development of the Enhanced Situation Display (ESD); provide a functional demonstration of Oceanic Data Link at the Oceanic Development Facility (ODF), followed by field level development at Oakland Center; and begin air traffic evaluation of ODAPS Flight Data Processor (FDP) at the ODF.

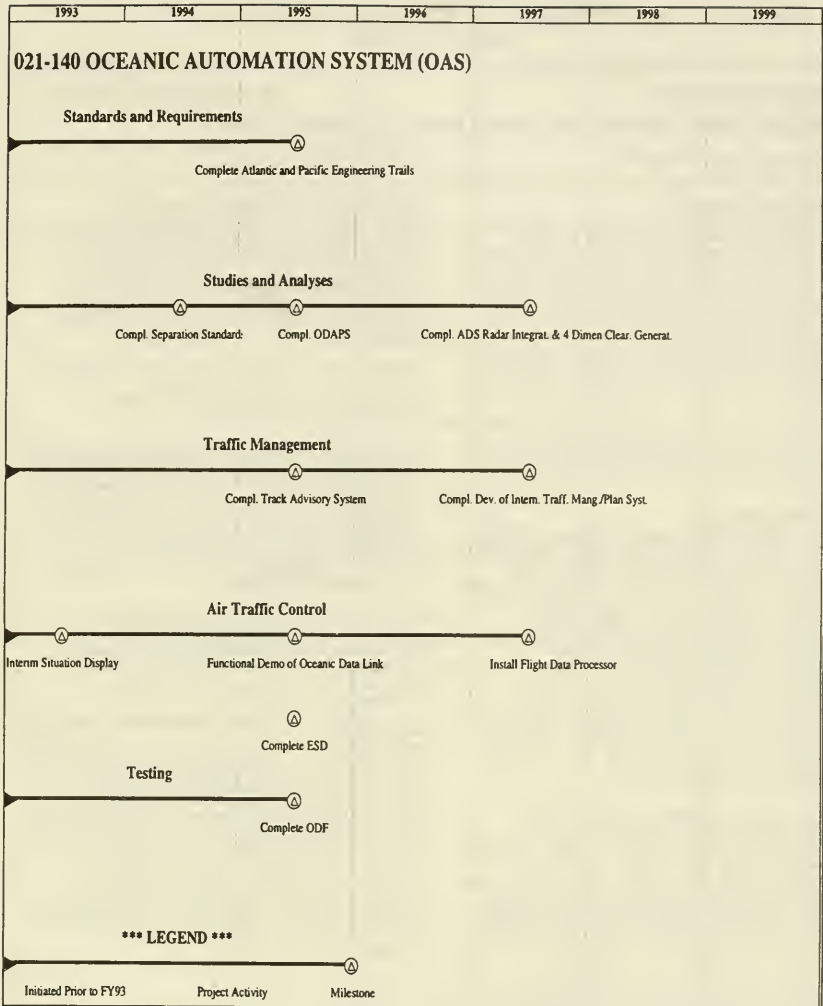
Benefits:

Through the development of a comprehensive series of automated oceanic air traffic control and

management improvements (based on user requirements and technological opportunities), significant benefits to the economy and environment will be achieved. Substantial benefits in efficiency of flight operations and capacity will be obtained by providing oceanic controllers and planners with timely aircraft position reports and a data communications link.

The use of Automatic Dependent Surveillance to tactically control aircraft, provide automated position report processing and analysis, and near real-time monitoring of aircraft movement, will ultimately result in more efficient flight and the savings of millions of dollars in airline operating costs, enhanced environmental protection, and energy conservation.

Studies have shown that the development of Oceanic Traffic Planning capabilities will provide a 5 to 7 percent improved fuel efficiency for users with automation necessary for handling increased traffic loads. Integration of Dynamic Ocean Track System functions with the ATMS will provide for fuel and time savings by ensuring that the planning of oceanic and domestic traffic is integrated.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
6,845	11,449	10,910

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995

Budget Item No: 2c

R,E&D Plan No: 021-180

Program Title: Terminal Air Traffic Control Automation (TATCA)

Amount: \$17,242,000

Basis for Request:

The TATCA program was established to develop automated tools to assist controllers in expediting and optimizing traffic in the terminal and en route center airspace. The TATCA program will develop operational aids and advisories to assist traffic managers, controllers, and supervisors in planning and controlling arrival and departure aircraft more efficiently, thereby improving the capacity of air traffic at major airports.

The TATCA program consists of two projects: the Center-TRACON Automation System and the Controller Automated Spacing Aid.

Program Request:

Center-TRACON Automation System (CTAS)

The FY 1995 request supports continued development of the CTAS automation tools. These tools, which include the Traffic Management Advisor (TMA), the Descent Advisor (DA), the Final Approach Spacing Tool (FAST), and the Expedite Departure Path (EDP), are being developed using concurrent laboratory simulations and field evaluations of a software prototype prior to limited deployment. Limited deployment will expeditiously field operational capabilities at the most beneficial sites prior to full-scale national implementation.

The FY 1995 request also supports continuing field development and evaluation associated with the limited deployment of TMA. This tool will provide a dynamic scheduling capability to assist terminal area and en route controllers in efficiently sequencing and scheduling arrival traffic through en route and terminal airspace.

The FY 1995 request supports the continued development of the DA prototype. This tool will provide en route controllers with optimal, fuel-efficient descent profiles to help aircraft meet the TMA schedule. In addition, concept exploration will be initiated to develop a prototype for EDP.

In addition, the FY 1995 request supports ongoing field development and

evaluations for FAST as well as development of the FAST software baseline. Limited deployment of FAST is scheduled to begin at Dallas-Ft. Worth in FY 1995. This tool will provide optional advisories to assist terminal controllers in spacing and sequencing arrival aircraft for the final approach.

The FY 1995 request will also support efforts to incorporate CTAS capabilities into the Advanced Automation System (AAS).

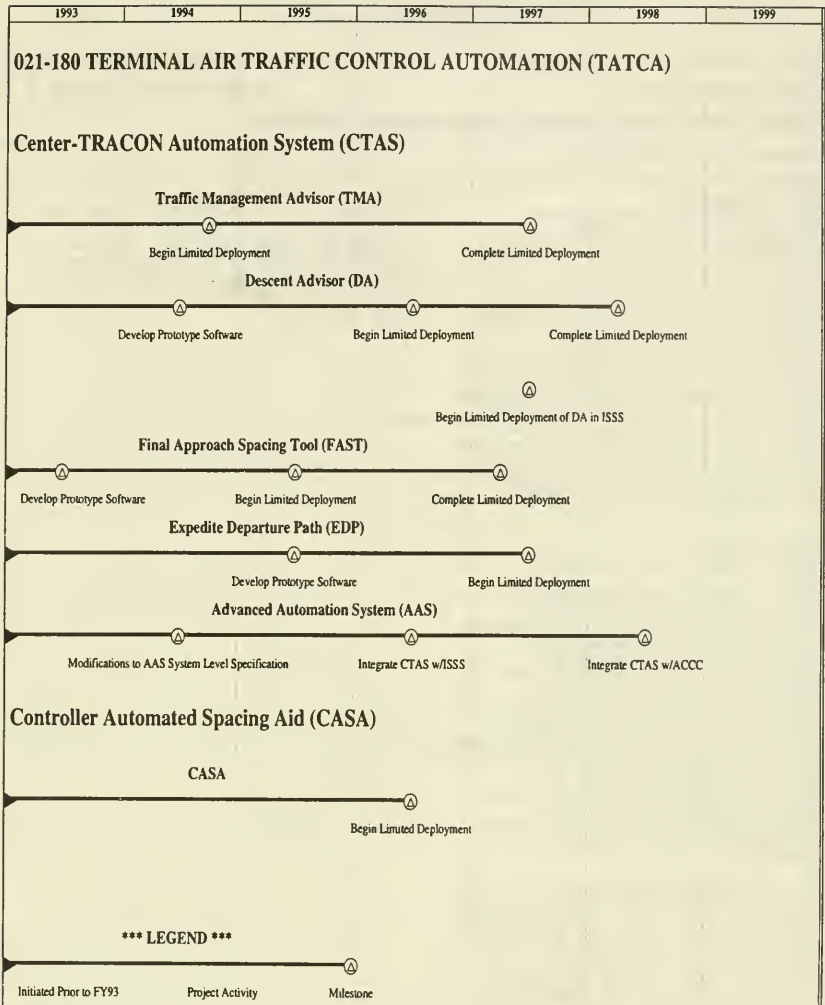
Controller Automated Spacing Aid (CASA)

The FY 1995 request supports continued development of automation software and procedures. The CASA project is an enhancement of the Converging Runway Display Aid (CRDA) project which was deployed nationally in FY 1992. Limited deployment of CASA is scheduled to begin in FY 1996.

The CASA project will explore and develop the following capabilities: enhanced CRDA functions in terminal airspace; and additional ghosting techniques applied to en route airspace.

Benefits:

This program provides economic national priorities. Substantial benefits will be derived by the U.S. airline industry as a result of decreases in fuel burn and overall flight duration along user-preferred flight paths. TATCA products will provide arrival traffic flow increases ranging from 1-7 percent during instrument meteorological conditions depending upon the runway configuration, representing substantial cost savings to aircraft operators annually.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
15,375	15,191	17,242

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 2d

**R,E&D Plan No: 021-190
021-210**

Program Title: Runway Incursion Reduction/Tower Automation

Amount: \$8,135,000

Basis for Request:

There is a need to integrate and consolidate existing airport environment displays and controls in air traffic control towers. Advances in surface surveillance, communications, and automation techniques are required. This program will develop a comprehensive surface safety system that: combines differential Global Positioning System (GPS) and other surface sensors with a surveillance data link; displays target location with alphanumeric data tags; processes track and flight data to automatically provide to the controller optimal arrival/departure taxi routes in all-weather conditions; and monitors route conformance to help prevent runway incursions.

conflict alert to the tower controller with positive aircraft identification.

TIDS consolidates displays, improves controller scanning for information, and gains needed space in the towers to support ASTA and other future tower-based systems.

Program Request:

Airport Surface Traffic Automation (ASTA)

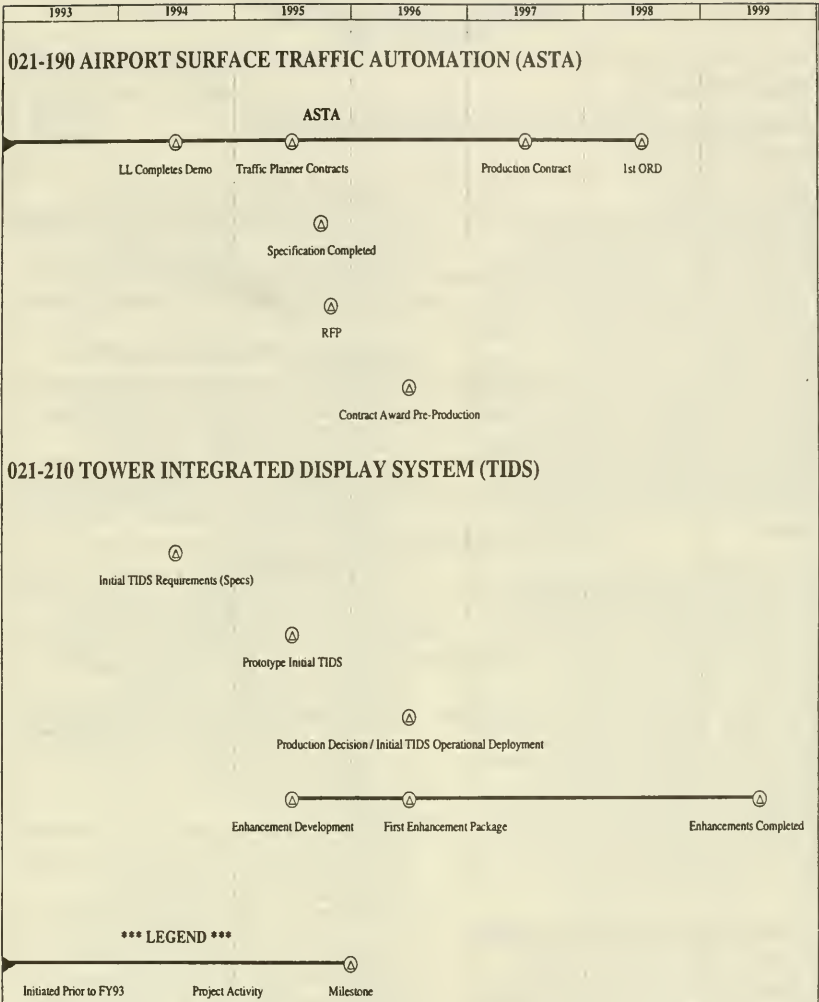
During FY 1995, a detailed system specification for incorporating differential Global Positioning System data with ASDE-3 and the Airport Movement Area Safety System and aircraft/vehicle data tags will be completed. Also, three to five contracts will be awarded for the development of the traffic planner function of ASTA. A pre-production and production Request for Proposal for GNSS surveillance data link is scheduled for release in FY 1995 with pre-production contract award in FY 1996, production award in FY 1997, and first Operational Readiness Demonstration in FY 1998.

Tower Integrated Display System (TIDS)

FY 1995 funding will be used to install and integrate an initial TIDS prototype at the FAA Technical Center for Air Traffic evaluation, and design completion. Test and evaluation will be conducted leading to a production decision in FY 1996. Also, requirements for TIDS enhancements and future design improvements will be initiated.

Benefits:

The ASTA program yields improved all-weather safety of ground operations by preventing runway incursions, and provides automated backup and surface



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
10,598	9,981	8,135

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 2e

R,E&D Plan No: 021-220

021-230

Program Title: System Capacity, Planning and Improvements

023-120

024-110

Amount: \$12,330,000

Basis for Request:

This program promotes increased system capacity by: producing the annual Aviation System Capacity Plan; developing site specific plans for airport/airspace capacity enhancements; developing air traffic control procedures to reduce airport delays by more fully utilizing multiple-runway capacity during instrument meteorological conditions; improving understanding of wake vortex strength, movement, and duration as a means for developing decreased parallel runway spacing and improved aircraft separation criteria; and providing quantitative guidance for domestic and international efforts to establish minimum vertical, lateral, and longitudinal aircraft separation standards.

Program Request:

Aviation System Capacity Planning
The 1995 Aviation System Capacity Plan will be published. Three Airport capacity Design Team Studies, one Airport/Airspace Capacity Tactical Initiatives and one Terminal Airspace Capacity Design Study will be completed. A Terminal Airspace Design Study which includes Global Positioning System (GPS) and/or Flight Management System (FMS) approaches will be initiated. This project also supports approach and capacity enhancing procedures through NSC and real-time simulations. In 1995, Aviation Capacity Enhancement (ACE) teams will continue to investigate near-term (less than 2 year) solutions to problems at the top twenty-four airports experiencing chronic delays.

Multiple Runway Procedures Development
In FY 1995, air traffic procedures for instrument approaches to triple parallel runways spaced at 3,400 feet or greater using the Precision Runway Monitor (PRM) will be approved. Real-time simulations will continue in order to develop procedures for instrument approaches to dual parallel runways spaced at 3,000 feet using PRM and advanced navigation/landing systems such as the GPS and microwave landing system with the recommended procedure completed in FY 1996. Simulation will be initiated: (1) to evaluate the

integration of traffic alert and collision avoidance system (TCAS) with dual and triple closely spaced parallel approaches; and (2) to develop procedures for simultaneous approaches to two parallel and one converging runway using the FMS to achieve lower weather minima.

Wake Vortex Separation Standards Reduction

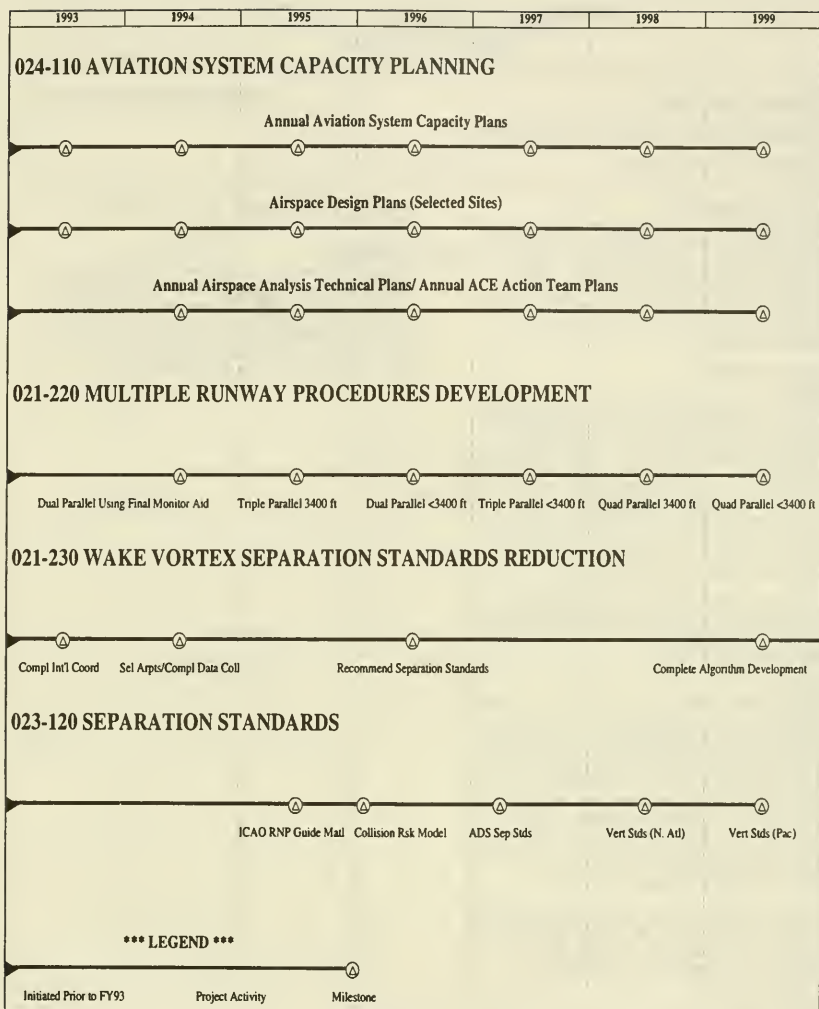
In FY 1995, the joint effort between FAA/NASA will continue to develop models and simulation techniques that characterize wake vortex hazards. Also, the development work will continue on an automated wake vortex spacing system to be completed by 2001. Recommendations for decreasing parallel runway separation standards should be available by 1996.

Separation Standards

Work continues to support the reduction of vertical separation standards above 290 flight level from 2,000 feet to 1,000 feet. Implementation in the North Atlantic is planned for 1998. Guidance to support international standards for area navigation separation and for Required Navigation Performance will be completed in 1995/1996. Development of separation standards in oceanic airspace using automatic dependent surveillance will be completed in 1997.

Benefits:

Potential economic savings for aircraft operations systemwide from the implementation of airport and airspace design teams are in excess of \$1 billion per year. Approval of procedures for instrument approaches to dual, triple, and quadruple parallel runways will result in reductions of aircraft delays, aviation fuel consumption, and polluting aircraft emissions, as well as significant cost savings to airlines by as much as \$2 billion per year. The reduction of aircraft in-trail separation and parallel runway separation standards will optimize aircraft arrivals/departures. It has been estimated that the reduction in vertical separation standards yields \$60 million per year in fuel savings for North Atlantic routes alone.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
9,765	11,159	12,330

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995

Budget Item No: 2f

R,E&D Plan No: 022-110

Program Title: Cockpit Technology

Amount: \$7,613,000

Basia for Request:

This program will develop, demonstrate, and support the implementation of a Congressionally mandated airborne collision avoidance system. The aviation community will be provided with the standards and certification guidance materials required for implementation.

contract is currently scheduled for FY 1998.

Benefits:

The program contributes significantly to safety by providing an independent aircraft separation assurance backup to normal air traffic control operations, thereby reducing the potential of a mid-air or near mid-air collision in the National Airspace System.

Program Request:

TCAS I

TCAS I, a proximity warning system, provides traffic advisory information on a cockpit display. The traffic advisory indicates the range, bearing, and if Mode C equipped, the relative altitude of the intruder aircraft. The FAA Traffic Alert and Collision Avoidance System (TCAS) rule mandates the use of TCAS I on all turbine-powered commuter aircraft with 10 to 30 passenger seats by February 9, 1995.

During FY 1995, TCAS I transition program will continue to support and monitor the implementation and operation of TCAS I.

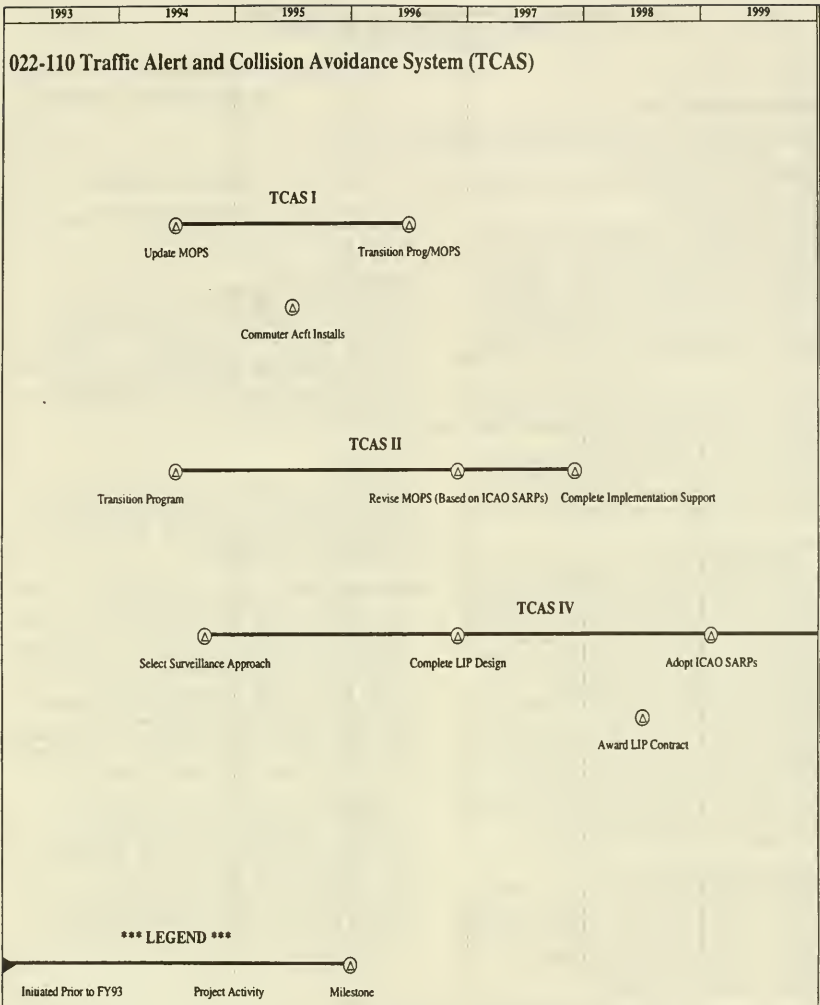
TCAS II

TCAS II provides the pilot with traffic advisories and resolution advisories in the vertical plane (e.g., CLIMB) for purposes of ensuring safe separation from aircraft on collision or near-collision courses. In accordance with a Congressional mandate to equip all commercial turbine-powered aircraft with TCAS II by December 30, 1993, the FAA is continuing to provide technical support during the transition of TCAS II into the NAS.

During FY 1995, the TCAS program will provide continuing engineering and operational support to the aviation community to make user-desired enhancements.

TCAS IV

TCAS VI equipment is being developed to generate traffic and resolution advisories for pilots in both the vertical and horizontal planes (e.g., TURN RIGHT). The TCAS IV requirements definition, validation, and design development for the Limited Implementation Program (LIP) will be completed in FY 1996. Award of the LIP



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
5,325	6,251	7,613

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 2g

R,E&D Plan No: 022-140

Program Title: Vertical Flight Program

Amount: \$3,663,000

Basis for Request:

This program will improve the safety and efficiency of vertical flight (VF) operations and increase the capacity of the National Airspace System (NAS) through the development of R,E&D into VF air traffic rules and operational procedures, heliport and vertiport design and planning, and VF aircraft and aircrew certification and training.

To accomplish expanded use of vertical flight, the program will focus on the following technical sub-program areas: air infrastructure, ground infrastructure, and aircraft/aircrew. R,E&D efforts will consist primarily of studies and analyses, simulations, model development, and flight testing.

Program Request:

Air Infrastructure

In FY 1995, work will continue on noise data collection, and noise abatement corridor standards for Vertical Flight Aircraft. In addition, development of a commercial VF infrastructure will be advanced by ongoing simulation flight tests using steep angle Instrument Flight Rules (IFR) procedures. Simulated flight tests will continue through FY 1996, resulting in draft procedures and Terminal Instrument Procedures (TERPS) criteria for urban heliports and vertiports in FY 1997. Helicopter flight tests using GPS navigational guidance will be initiated to validate operational procedures developed through simulation.

Ground Infrastructure

Analytical efforts of VF short-haul transportation system benefits to the NAS will continue in FY 1995, and will result in the development of a plan for federal participation in advanced Vertical Flight technology demonstration programs.

Also in FY 1995, community handbooks and computer planning aids to assist civic planners on rotorcraft noise issues will be published. Work on the analysis of test results of heliport and vertiport design parameters, including minimum required airspace for Visual Flight Rules (VFR) for curved approaches and departures, minimum parking and maneuvering areas, marking,

lighting and rotorwash protection requirements will continue with results to be published in FY 1996.

Aircraft/Aircrew

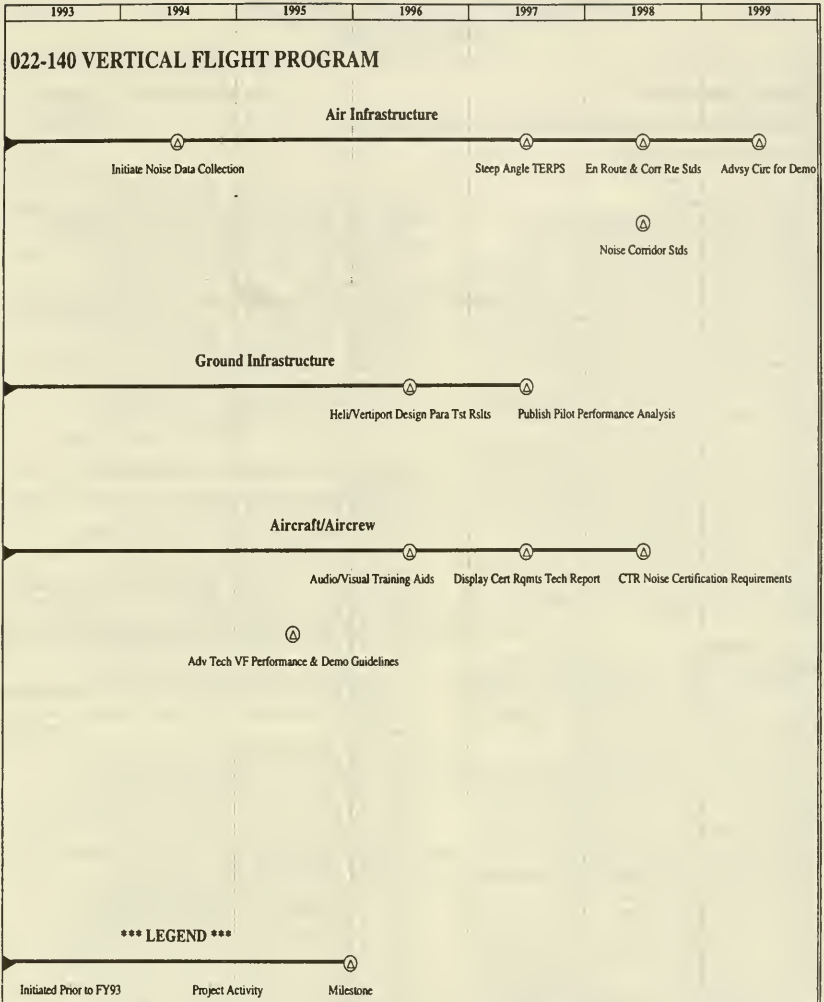
In FY 1995 audio and visual training aids to increase safety and vertical flight operations will continue, with published reports available to pilots in late FY 1996. In addition, work will continue on the technical analysis of VF aircraft display certification requirements, with results published early in FY 1997.

Benefits:

This effort, which is directed at reductions in national aviation delay costs, supports the national goals for multimodal transportation development, and fosters international aviation technology leadership.

The expanded use of VF technology, with its inherent greater operational flexibility, can increase intercity NAS capacity by as much as 10%. Significant reductions in the estimated \$5 billion national annual aviation delay cost could be realized if reliable VF-based short-haul passenger service could be established. U.S. aviation technology leadership will be fostered by FAA initiatives to provide a market responsive infrastructure.

Environmental improvements will be realized through rotorwash and noise control and abatement designs and techniques. Safety will be improved for low altitude operations (500 to 3,000 feet above the ground). Improvements in heliport and vertiport design will result in increased NAS capacity, and safer and more efficient VF programs.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
5,500	3,222	3,663

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 2h

R,E&D Plan No: 025-110

Program Title: Modeling, Analysis, and Simulation

025-130

025-140

Amount: \$9,915,000

Basic for Request:

National Airspace System (NAS) modernization requires Modeling, Simulation and Analysis to solve complex operational problems, systems technology, and investment issues. The modeling, simulation and analysis needs include accurate and cost-effective means to: predict and optimize future ATC system performance; analyze the cost benefits of ATC technologies; improve airspace use; increase fuel efficiency; and decrease congestion, flight times and controller and pilot workloads. Specific modeling, simulation and analysis requirements are: NAS-wide operations and systems analysis and performance prediction, system planning and investment analysis, and modeling airport and airspace configurations and their impact on system operation. [Note: For FY 1995, Operational Traffic Flow Planning (OTFP) has been moved to budget item number 2a, Air Traffic Management Technology.

Program Request:

National Simulation Capability (NSC)

This project will significantly enhance the FAA's ability to develop the future NAS by creating a synthetic, virtual representation of the future NAS. NSC will be used to evaluate future operational concepts, human interactions, and emerging technologies in overall system performance. NSC accomplishes this by systematically connecting separate subcomponents of simulations on a distributed interactive simulation network. In FY 1995, NSC will conduct experiments integrating advanced aircraft autonomous capabilities, future oceanic air traffic control programs emerging en route terminal, surface automation programs, and systems for centralized operations management. The result of this work will be used to develop alternative decision strategies for the future NAS.

NSC will continue to evolve a standardized set of ATC simulation procedures/protocols as part of an NSC open architecture to extend the capabilities of NSC.

Air Traffic Models and Evaluation Tools

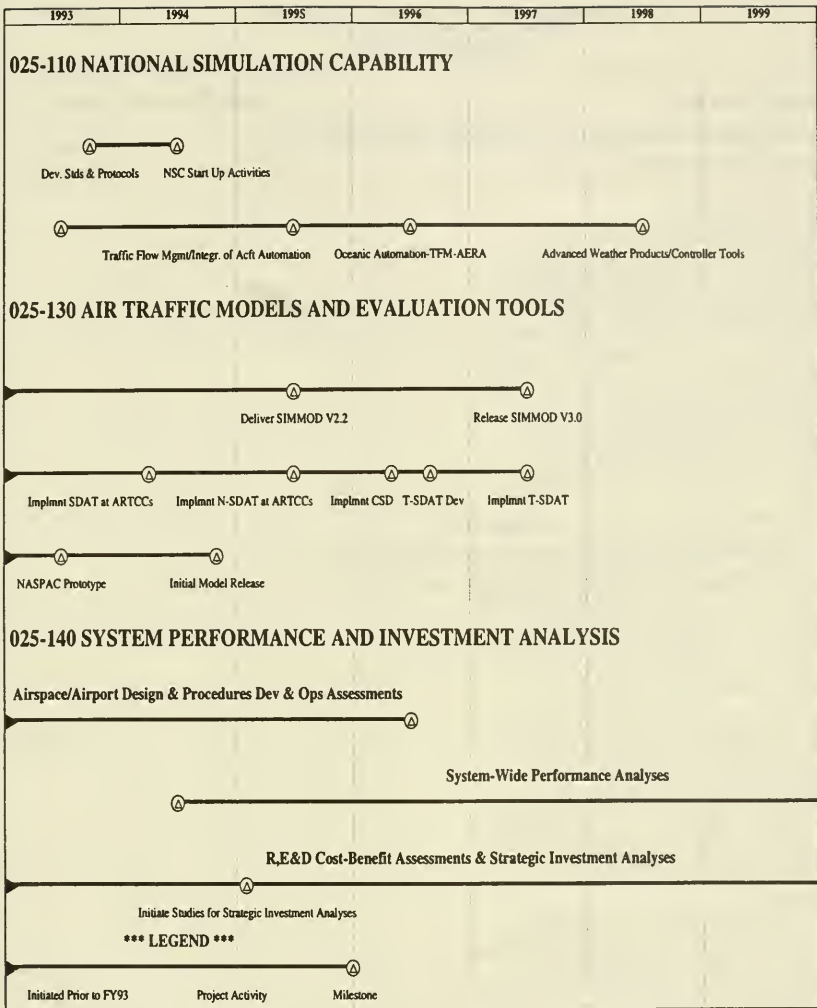
This project provides for the design and/or evaluation of airspace routes and sectors, procedures, schedules, new technology, and proposed airport improvements. The FY 1995 request will extend the Sector Design Analysis Tool (SDAT) to terminal airspace design, include controller workload and communications as constraints into the Airport and Airspace Simulation Model (SIMMOD), and maintain the NAS Performance Capability (NASPAC). It will continue implementing these technologies in FAA field activities.

System Performance and Investment Analysis

This project will conduct system planning, capacity, delay and performance analyses, NAS-related issues, benefit-cost, or other studies in support of system investment, planning, engineering, development, and operation. Annual baseline and system performance measurement will occur to determine overall effectiveness of the air traffic system. The NAS-wide, long-term effect of alternative investment strategies will also be explored.

Benefits:

Through early identification and analysis of risk associated with NAS development and capital investment decisions, significant cost savings are possible which are expected to greatly exceed the cost of the analysis. Faster, more cost effective infusion of new NAS concepts and advanced technologies into the R,E&D program will be achieved. Improvements in aviation safety, energy conservation, NAS throughput and route flexibility, and reduced delays and travel times will result. Analysis will support R,E&D program and project investments that reduce delays and minimize hazards, resulting in more effective use of public funds and optimized system planning and operation.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
9,049	8,814	9,915

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995

Budget Item No: 21

R,E&D Plan No: 026-120

Program Title: Future Airway Facilities Technology

Amount: \$1,030,000

Basis for Request:

With the emergence of new aviation technology and its subsequent implementation into the aviation industry, a new approach to systems maintenance will also be required to ensure the future integrity of the National Airspace System (NAS).

This program will evaluate future NAS technologies and their impact on the Airway Facilities (AF) function. It will also: (1) develop an AF/Operational Control Center (OCC) testbed; (2) develop prototypes of expert systems and diagnostic/resolution tools; and (3) explore new concepts in maintenance methodology.

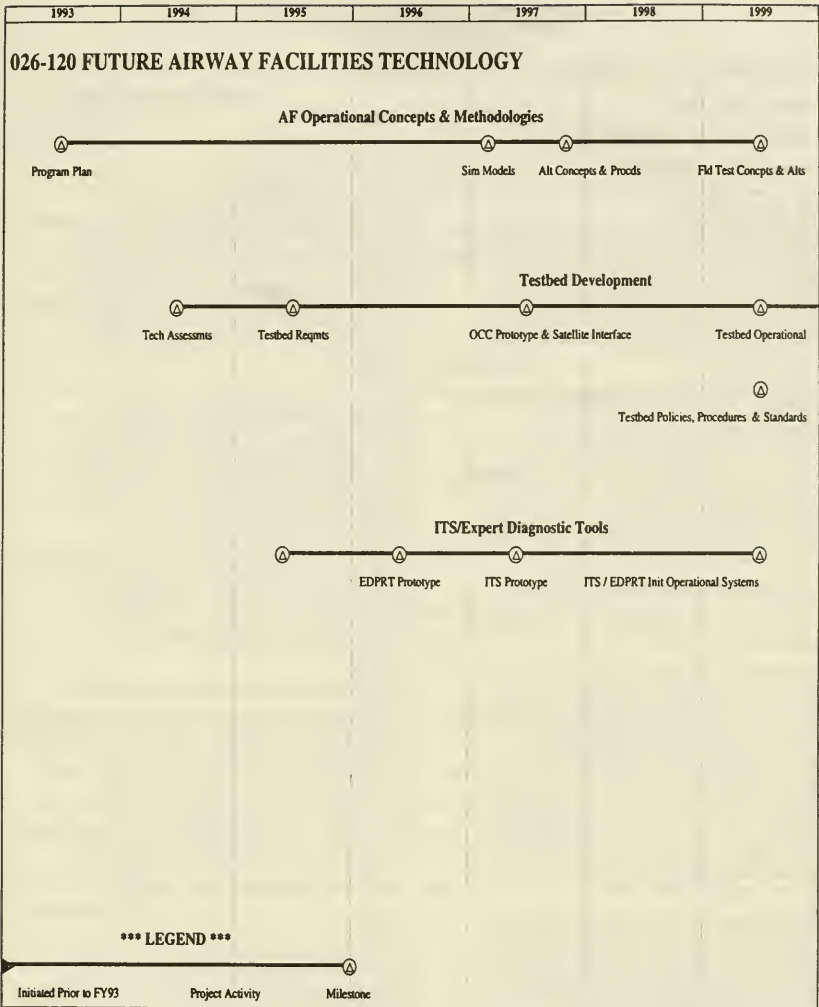
Program Request:

This program will utilize the requirements defined in the FY 1994 study effort. Testbed development will begin in FY 1995. Operational concepts and procedures will be constructed for use with the testbed to evaluate alternative applications of the future AF mission, including monitoring and managing of both ground-based and satellite-based NAS facilities.

Coincident with testbed development, other advanced technology initiatives will get underway. These comprise Expert Diagnostics, Predictive/Resolution Tools (EDPRT's), an Intelligent Tutoring System (ITS), and OCC computer models. It is envisioned that these tools will be integrated into the testbed to enhance the future AF operational environment.

Benefits:

This program provides a long-term systematic approach to ensuring the efficient future integration of Airway Facilities with new technology implemented within the NAS. The development of a testbed for prototyping future operational centers will lower system maintenance costs, reduce mean down time of future systems, and improve productivity.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
0	500	1,030

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 3a

R, E&D Plan No: 031-110

Program Title: Communications

031-111

031-120

031-130

Amount: \$19,333,000

Basis for Request:

The Aeronautical Data Link, Satellite Communications and National Airspace System (NAS) Telecommunications for the 21st Century programs will provide pilots and controllers with improved digital air-ground communications services using satellite, Very High Frequency (VHF) and Mode S data link.

Program Request:

Aeronautical Data Link Communications
Data link standards development continues with International Civil Aviation Organization (ICAO) and U.S. standards organizations in FY 1995. Aeronautical Telecommunications Network (ATN) standards validation testing will be completed in FY 1995. The final report for network management concept on the efficient use of the ATN system will be completed in FY 1996.

In FY 1996-1998, research will be conducted on routing, security and ATN management as it applies to the global environment.

In FY 1995, R&D continues in surface/air surveillance applications. This research uses Automatic Dependent Surveillance (ADS) techniques based on Global Positioning System (GPS) aircraft position information. This information will be delivered using the Mode S Squitter function. Validation demonstrations, for airport surface, terminal, and en route surveillance, initiated in FY 1994, will be completed in FY 1995. Functional specifications will be published in FY 1995, contract award planned in FY 1996.

Aeronautical Data Link Applications

Development and end-to-end validation of an initial set of en route and terminal ATC data link services will continue in FY 1995, in preparation for national implementations in FY 1996-1998. R&D of enhanced ATC, Communications, Navigation, and Surveillance (CNS) and flight information services will continue in FY 1995, with completion in FY 1999.

Enhancements to the Tower Data Link Services (TDLS), Pre-Departure Clearance, and Digital Automatic Terminal Information Service (ATIS),

will be developed and fielded to improve controller workload and system performance. Hazardous and routine weather, and other flight information services, including real-time graphical weather services for pilots, will be developed in FY 1995. Operational test and evaluation of an initial set of text-based weather services will be completed in FY 1995 and implemented in FY 1996.

Satellite Communications Program

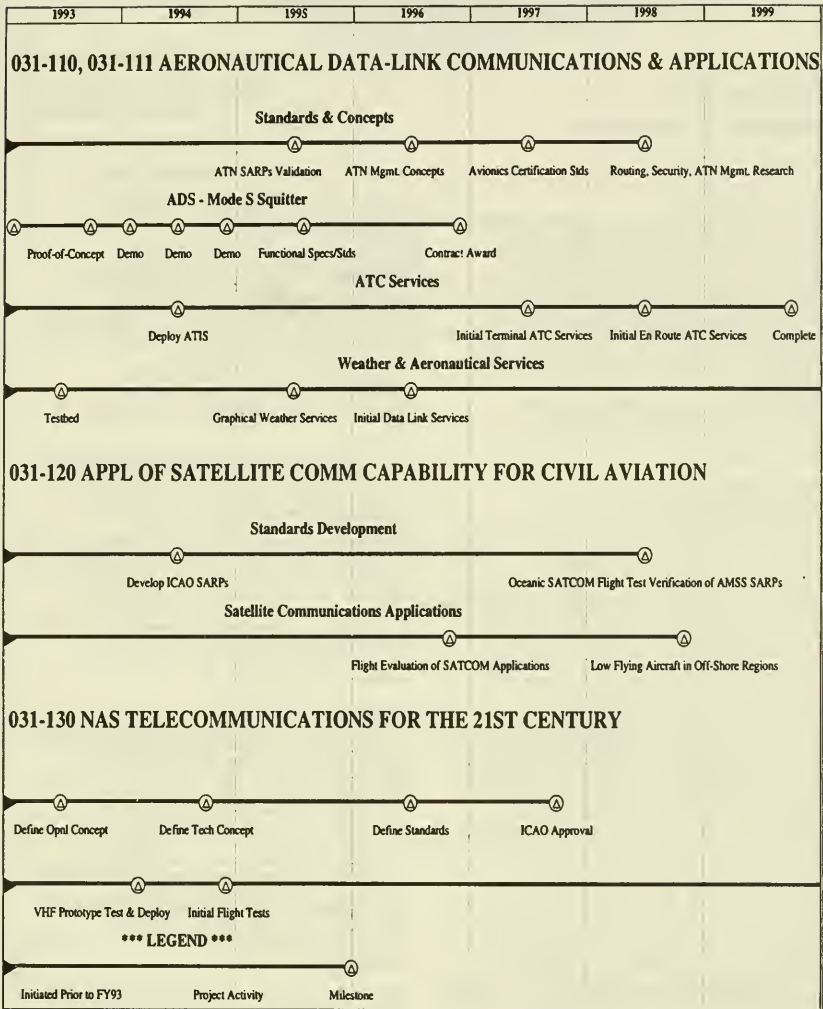
Testing, to verify initial ICAO standards and recommended practices, U.S. Minimum Operational Performance Standards, and end-to-end system performance requirements for the Aeronautical Mobile Satellite Service (AMSS) use in oceanic regions, will continue through FY 1995, with completion scheduled for FY 1998. Through the ATN, the aviation and other air-ground satellite communications must operate together worldwide. Verification testing of the ATN airborne router is scheduled for completion in FY 1996.

NAS Telecommunications for the 21st Century

This program is developing an advanced systems architecture for VHF Air-Ground radios for the 21st century NAS. New systems architecture will be designed to provide for all present and currently foreseen future requirements for voice and data capabilities. It will provide increased capability, flexibility and security to improve overall safety in an environment of increased aeronautical traffic.

Benefits:

Safety, reliability, immunity to radio frequency interference, and security will be improved. Data link services will reduce radio congestion, promote safety, provide capacity and efficiency benefits when integrated with the Advanced Automation System and Automated En Route ATC enhancements. Increased communications and airspace capacity from data link improvements will result in an estimated economic benefit in fuel savings alone of \$100 million per year.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
12,993	14,745	19,333

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995

Budget Item No: 3b

R,E&D Plan No: 032-110
032-120

Program Title: Navigation

Amount: \$14,922,000

Basis for Request:

This program develops satellite-based radionavigation systems, such as the Global Positioning System (GPS), to support worldwide civil aviation improvements. It also provides long-term navigation planning and support for the preparation of the Federal Radionavigation Plan (FRP) and analyzes emerging navigation technologies and concepts to satisfy future aviation requirements. The program will increase system capacity while promoting global technological leadership in satellite-based navigation.

Program Request:

Satellite Navigation

The following actions will be undertaken in FY 1995 to ensure maximum safe use and benefits from GPS by civil aviation: (1) complete Technical Standard Orders (TSO) for GPS avionics augmented as necessary to meet Required Navigation Performance (RNP) in the U.S. for Oceanic and Domestic, En Route, Terminal, and Nonprecision approaches; (2) tests will be completed and private Local Area Differential (LADGPS) will be approved for instrument precision approaches to Category I approach minimums; (3) feasibility test and development for a GPS Integrity Broadcast (GIB) and Wide Area Differential GPS (WADGPS) will be completed for oceanic and domestic, en route, and nonprecision approaches; (4) deployment of INMARSAT satellites suitable for broadcasting the GIB/WADGPS signal will allow operational testing to begin with full operational RNP service planned for 2000; and (5) additional tests and development will continue on the use of GIB/WADGPS for instrument precision approaches to Category I approach minimums and for a ranging signal from geostationary satellites to improve GPS availability for a supplemental service to begin in 1998.

Aggressive research and development with industry and academia to determine the feasibility of using GPS based systems to satisfy instrument precision approach category II/III requirements

will be completed in FY 1995 with flight-tests of several of the most promising alternatives.

Navigation Systems Development

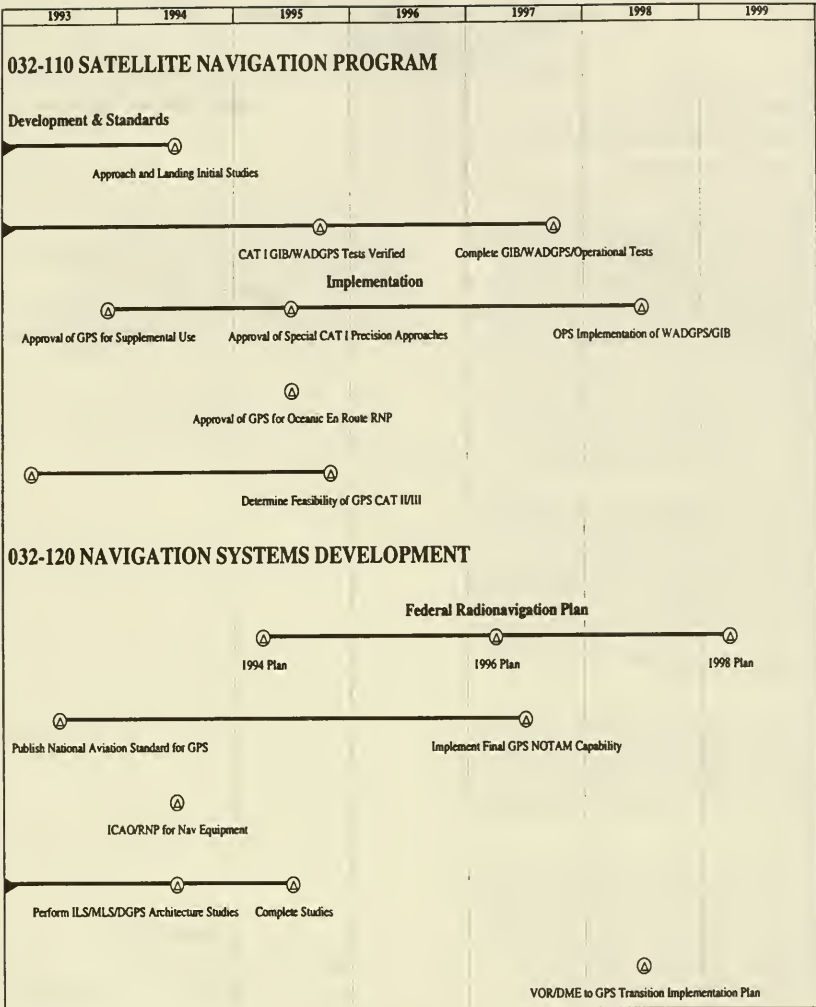
In FY 1995, the NAS Navigation Plan will be completed. The plan will provide the strategy for a major shift to satellite technology. It will focus on resolving three major issues: current navigation system supportability, transition to satellite-based navigation, and potential ground-based systems phase-out.

Also in FY 1995, work will continue in developing Global Positioning System (GPS) Notices to Airmen (NOTAMS) and analyzing new navigation technology concepts. The landing system architecture study will be completed in FY 1995. These efforts will support the major landing system decision to be made at an international meeting in FY 1995. Publish the 1994 edition of the FRP and develop Minimum Operational Performance Standards (MOPS) for Required Navigation Performance criteria using GPS.

Benefits:

This program provides technical leadership, safety, environmental protection, and economic health. Operational cost savings from the GPS satellite navigation program have been estimated to be in the hundreds of millions of dollars as a result of increased capacity and reduced fuel use through reduced route separation standards, instrument approaches to all runways, and optimum routing. Applications of new technologies to existing systems will result in improved and more cost effective system performance.

The FRP outlines the US Government's management practices for Federally provided navigation systems used by both military and civil sectors. The plan guides the implementation of air, marine, land, and space navigation systems to ensure efficient use of resources between agencies, and protects the national interest.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
16,217	20,930	14,922

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995

Budget Item No: 3c

R,E&D Plan No: 033-110

Program Title: Surveillance

Amount: \$5,217,000

Basis for Request:

This program will define, develop and implement the next generation Terminal Area Surveillance System (TASS) for aircraft surveillance and detection of hazardous and non-hazardous weather. The primary and secondary surveillance radars and weather sensors now being deployed will need to be replaced due to obsolescence and to meet future demands for advanced capabilities in aircraft and weather detection. Emerging technology will allow the FAA to meet these demands and improve on operation performance limitations imposed by today's technology.

module technologies will accrue substantial benefits. Commercial production and application of these technologies in advanced Air Traffic Control systems will reduce costs to the FAA and help maintain U.S. world leadership. The commercial market for these technologies is estimated to be well in excess of \$1 billion annually.

Program Request:

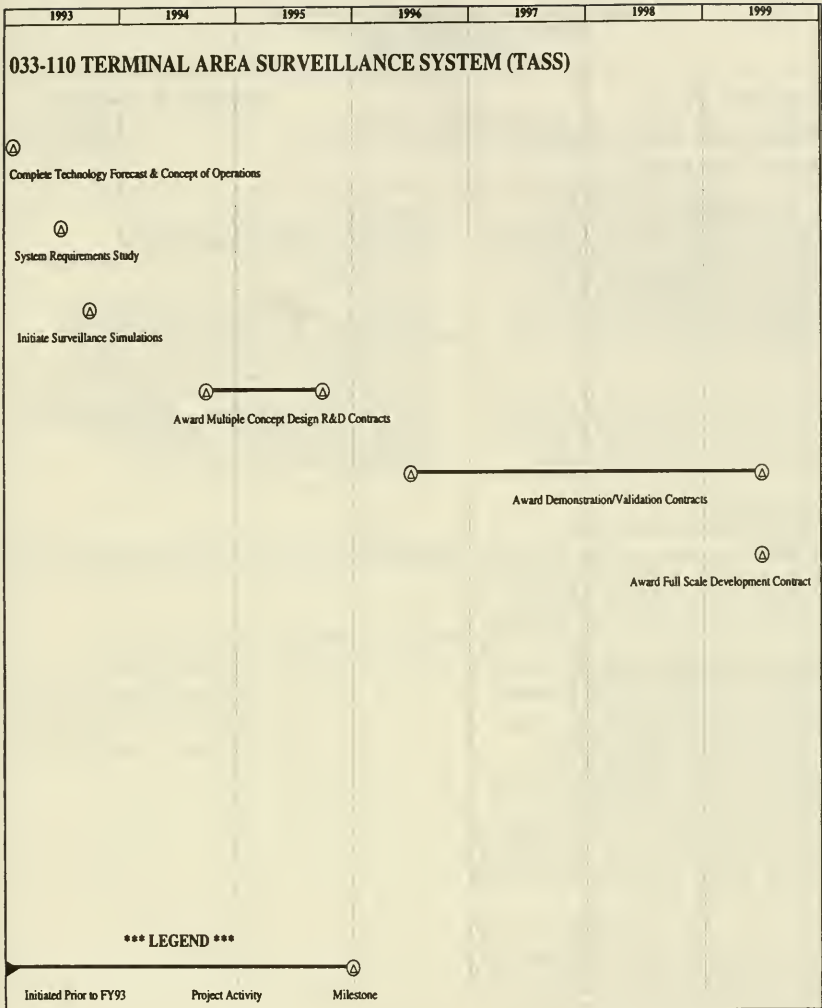
In FY 1995, concept designs resulting from competitive contracts awarded in FY 1994 will be completed. Various concept designs, to include trade studies, risk analysis, and cost and schedule projections, will be evaluated and the most promising alternative(s) selected for Demonstration/Validation commencing in FY 1996. Award of the full scale development contract is planned for FY 1999.

Simulations of promising technologies with future operational concepts and selected technology demonstrations with industry through cooperative research and development agreements (CRDAs) will continue in order to mitigate technical risks and refine minimum requirements.

Benefits:

Terminal area safety will be enhanced through new hazardous weather detection products and flexible surveillance coverage possible with TASS. System delays and separation criteria will be reduced through improved surveillance and weather detection capabilities. Preliminary analyses indicate a favorable benefit-cost ratio.

U.S. leadership in development of a multifunctional terminal sensor will provide significant economic benefits to industry as a result of strong domestic and international interest in integrated aircraft and weather surveillance systems. Support for current U.S. international technical leadership in civil-use phased-array radar and microwave microelectronics



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
2,859	3,000	5,217

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 4a

R,E&D Plan No: 041-110

Program Title: Weather Program

041-120

042-110

Amount: \$2,909,000

Basis for Request:

Improvements to weather forecasts of changes in ceiling and visibility at airports are needed to reduce delays and achieve full capacity of the National Airspace System. Present turbulence forecasts do not meet requirements and prevent timely and accurate turbulence information, which is a safety problem.

Development of look-ahead sensors will reduce windshear hazards to aviation. Aeronautical hazards to be addressed include Clear Air Turbulence (CAT), mountain rotor, other turbulence hazards and restrictions to visibility.

Benefits:

Improved ceiling and visibility forecasts will increase airport capacity and promote efficient airspace utilization.

Advanced sensor development will provide for detection and measurement of hazards to aviation identified by the FAA, NASA, the NTSB and industry. This information will be processed and provided for aircrews and the air traffic control system. Safety in the NAS will be increased through this capability to detect and avoid hazardous weather conditions.

Program Request:

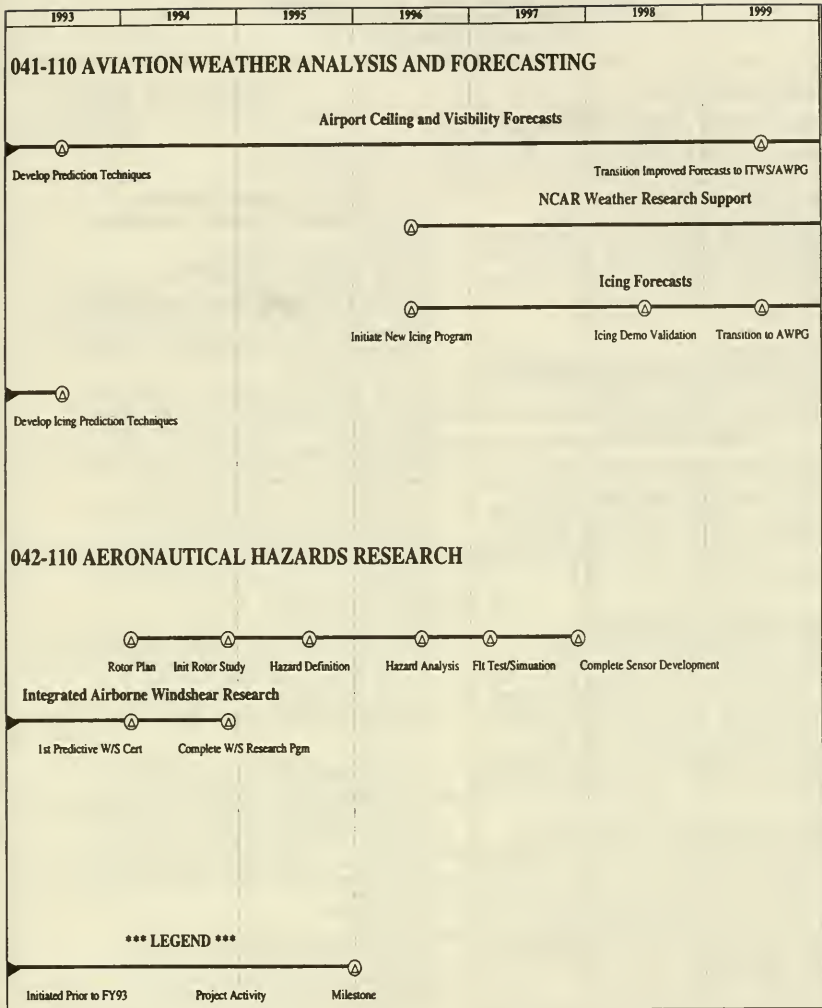
Aviation Weather Analysis and Forecasting

In FY 1995, research will be conducted on automation of forecasted changes in ceiling and visibility for airports. This project will lend to reductions in low visibility delays at hub airports.

Aeronautical Hazards Research

The enhanced sensor technology developed in the predictive windshear program will be the basis for Aeronautical Hazards Research. The work involves an approach which includes research, development, implementation and integration. In FY 1995 the initial definition of the hazards will be set forth, with a robust analysis of lift and the effects of turbulent hazards on the airframe to follow in 1996. This will be followed in 1997 by flight tests and simulations of various sensor technologies.

By the end of 1997, technology transfer to industry should be complete, providing for certifiable equipment to detect and measure these hazards. This program capitalizes on the success of the Windshear Program in developing look ahead sensors to reduce the windshear hazard to aviation. Aeronautical hazards to be addressed include clear air turbulence, mountain rotor, other turbulent hazards, and restrictions to visibility.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
6,116	1,908	2,909

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 5a

R,E&D Plan No: 051-110

Program Title: Airport Technology

051-120

051-121

051-130

Amount: \$9,443,000

Basis for Request:

This program develops guidelines, standards, and facilities for the safe and efficient operation of the Nation's airports and relates to airport planning and design technology, airport pavement technology, pavement tests, and airport safety technology.

Program Request:**Airport Planning and Design Technology**

Airside Technology - studies will continue on airport design and configuration to accommodate new generation larger aircraft.

Landside Technology - Work will continue on terminal building planning criteria for small and medium hub terminals. Studies will be initiated to support specific planning issues, such as financial performance, that affect the content of the National Plan of Integrated Airport Systems.

Airport Pavement Technology

Pavement Design and Evaluation - In FY 1995, interim guidelines for Pavement Design based on Layered Elastic Theory will be published. Work will continue on: (1) pavement design tools based on layered elastic theory, finite element analysis, and other advanced methods, and (2) Pavement Response measurement at the new Denver Airport to be used in validating design theories.

Pavement Material and Construction - Testing for material characterization and field verification will continue.

Pavement Maintenance and Repair - Work will continue on collecting and analyzing data that relates pavement performance to FAA design standards for use in development of a comprehensive airport data base.

National Dynamic Airport Pavement Tests

In FY 1995, work will begin in the development of detailed specifications for building pavement testing equipment. Work will continue towards developing full scale testing capability to determine the effect of new, large aircraft on pavement design

requirements, and for validation of Layered Elastic Method of pavement design.

Airport Safety Technology

Visual Guidance - In FY 1995, standards will be published for improved Airport Markings. Work will continue towards developing advanced technology lighting sources and on an Automated Taxiway Guidance System.

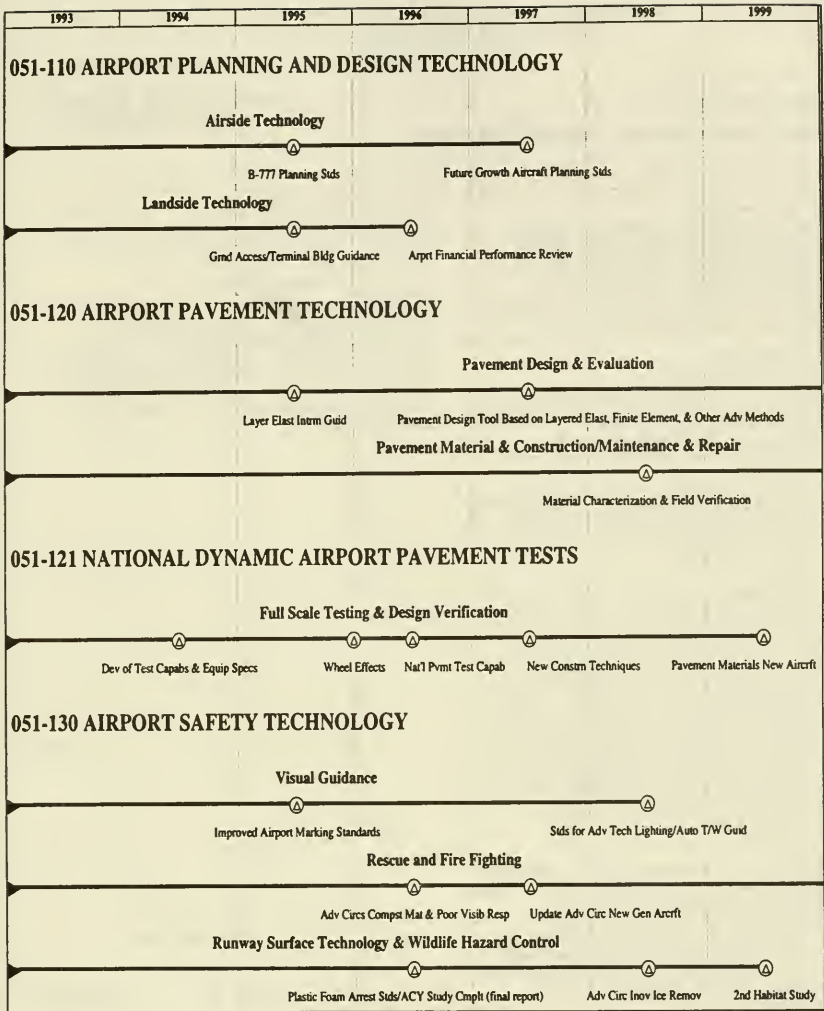
Rescue and Firefighting - In FY 1995, a study will continue on identifying technology to enhance rescue vehicles operating under poor visibility conditions. Efforts will continue on evaluating current rescue and firefighting standards for their ability to protect against fires in aircraft containing composite materials. Research will continue towards updating fire protection advisory circulars to include new-generation larger aircraft.

Runway Surface Technology - In FY 1995, work will continue towards developing design standards for installation and use of a plastic foam aircraft arresting system. Testing will continue on innovative methods of ice removal.

Wildlife - In FY 1995, standards will be published for wildlife habitat management plans for airports representing eastern U.S. geographical areas. A second regional study on habitat management (representing another U.S. geographical area) and studies on harassment techniques will continue.

Benefits:

The new and improved standards, criteria, and guidelines for the planning, design, construction, operation, and maintenance of airports, heliports, and vertiports will provide the means to ensure efficient application of federal aid for airport development and continued and enhanced airport operation from a capacity and safety standpoint.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
6,619	7,509	9,443

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995

Budget Item No: 6a

R,E&D Plan No: 061-110
061-111

Program Title: Aircraft Systems Fire Safety

Amount: \$5,337,000

Basis for Request:

This program will increase survival rates for aircraft occupants during in-flight and postcrash fires. It will also develop near-term improvements in material fire test methods, fire detection, extinguishment/suppression, and systems fire safety.

Program Request:**Materials Fire Safety**

Relying on testing of new concepts and materials completed in FY 1994, design guidelines will be developed in FY 1995 for hardening the fuselage against penetration by an external fuel fire.

In FY 1995, agency certification efforts will be supported by sponsoring and conducting the activities of the International Working Group on Aircraft Material Fire Tests.

Fire Management

In FY 1995, development will continue of certification guidance material for alternative extinguishing agents to the currently-used Halons, which will no longer be produced after December 31, 1993, because of their linkage with stratospheric ozone depletion. Final recommendations will be made on the methodology for certifying alternative agents/systems in cargo compartments. Similarly, fire extinguishing tests will commence in a new engine simulator in support of the derivation of approval criteria for powerplant applications.

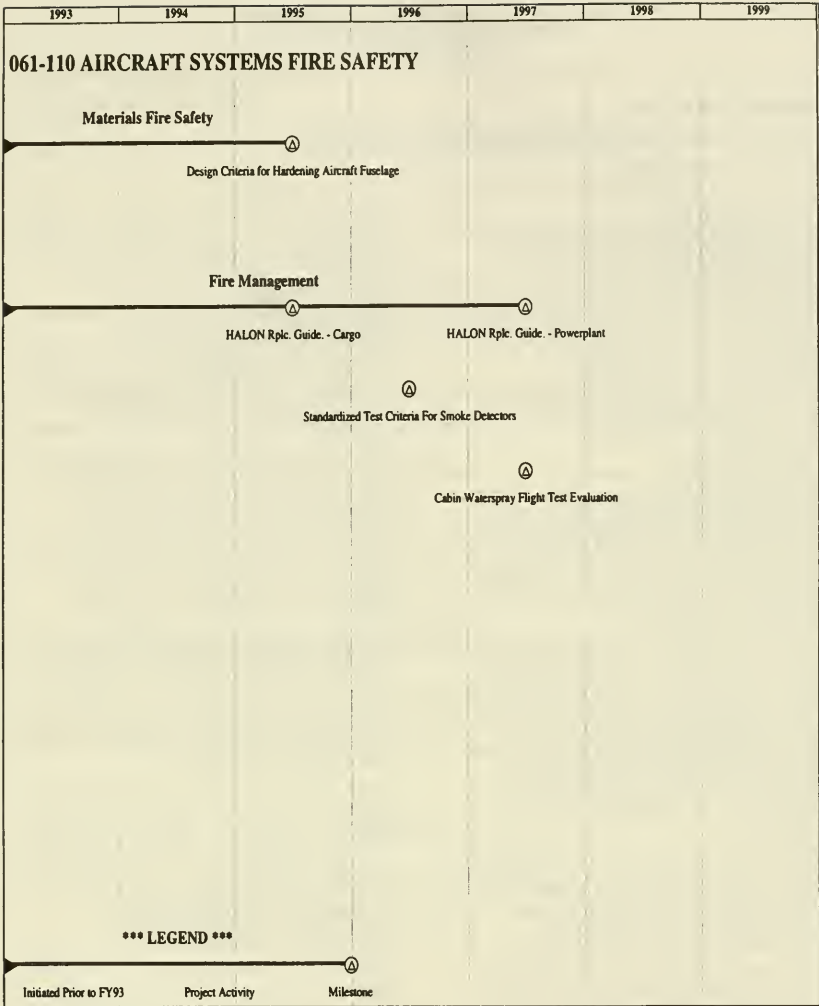
An initiative in FY 1995 will lead to the development of standardization test procedures and criteria for the certification of aircraft smoke detector response rates. The various means of compliance will be analyzed and full-scale tests will be conducted to characterize a range of fire signatures.

In FY 1995, work on a cabin water spray fire suppression system will consist of the design and fabrication of a water spray system for installation and evaluation in an operational airplane. This activity will yield detailed data related to aircraft system design, cost, weight, and maintenance.

Support will continue to be given to the National Transportation Safety Board in the investigation of aircraft accidents involving fire.

Benefits:

Projects such as fire hardening and cabin water spray are designed to increase passenger survival time in postcrash fires. Similarly, projects such as Halon alternatives and smoke detector response rates will result in improved passenger safety against in-flight fire.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
5,456	5,697	5,337

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 6b

**R,E&D Plan No: 062-110
062-111**

Program Title: Advanced Materials/Structural Safety

Amount: \$5,245,000

Basis for Request:

This program provides increased safety for both passengers and crew during flight by maximizing aircraft structural integrity through the use of advanced composite, metallic, and hybrid materials; and improving occupant survivability in the event of a crash. This ongoing program was formerly titled "Aircraft Crashworthiness/Structural Airworthiness". The name has been changed to more accurately describe the research being performed.

Program Request:
Structural Safety

In FY 1995, investigations will continue on the effects of a crash impact on a large transport airplane's auxiliary fuel tanks and empennage tanks; on cabin safety issues such as overhead bins and lower lobe seating concepts; and on rotorcraft energy absorbing structures.

In FY 1995, impact testing of small commuter airplanes will be completed and data analyzed. Results will be used to support commuter seat regulatory criteria. Large commuter airplane testing will begin. In a joint FAA/NASA effort, testing of advanced full-scale and component composite airplane structures will continue. The testing of advanced seat/restraint systems will also continue.

The study of structural response and flotation characteristics of transports and rotorcraft for water impact will continue in FY 1995. Flotation criteria and occupant survival requirements will be developed.

In FY 1995, model-driven analysis of test data and refinement of computer codes will continue. The correlation of existing data bases with crashworthiness software to develop computational methodologies will continue. Efforts to extend a structural model to energy absorption and response of a composite aircraft structure in a generalized impact will continue.

In FY 1995, bias- and radial-ply tire comparison tests will continue. A tire temperature-rise model will continue to be validated. Studies will begin on safety issues related to anti-skid brake certification tests.

Advanced Materials Structures

In FY 1995, a joint FAA/Army effort to evaluate and standardize test methods for composite materials will continue. An effort to develop certification methods for emerging and future composite materials will be initiated.

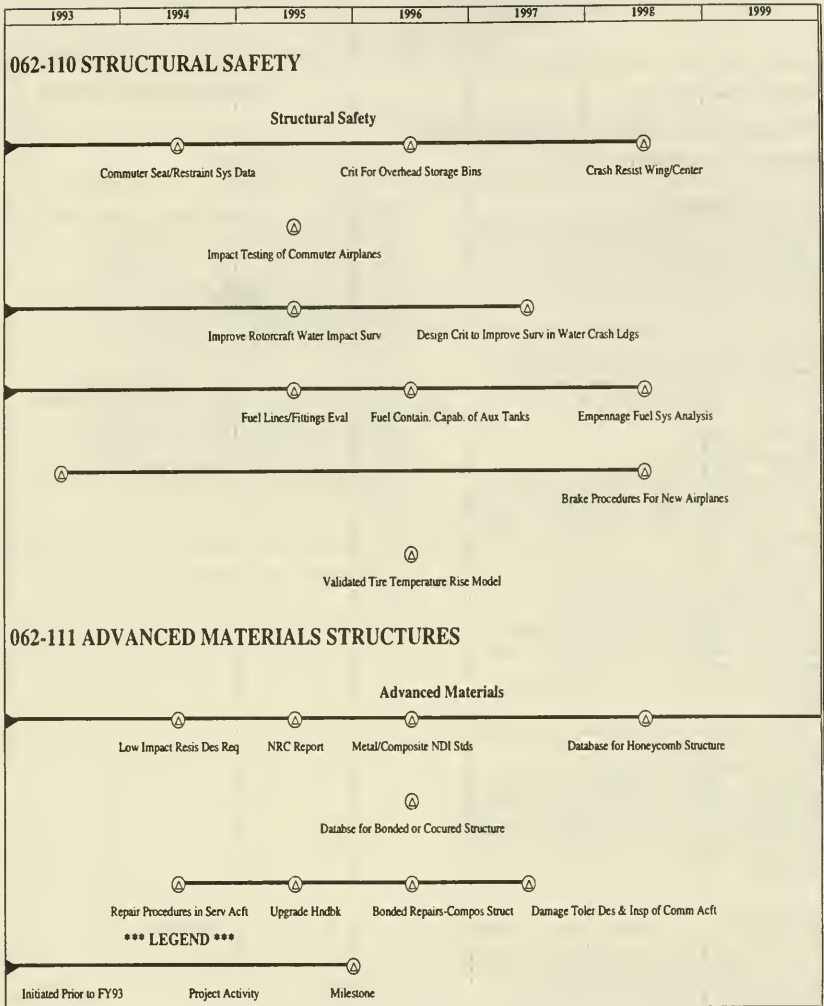
In FY 1995, the FAA will initiate an effort to evaluate the durability of bonded and bolted joints in the fabrication in composite structures. An FAA/NASA study of environmental effects on damage tolerance and durability of composite structures will continue, as will joint FAA/Navy evaluation of probabilistic design methods for composite structures.

Airworthiness oriented efforts to evaluate effects of bonded composite repairs on damage tolerant composite structures will continue. An effort to identify and evaluate nondestructive inspection methods for advanced materials components, structures, and bonded joints will begin.

An FAA-sponsored study by the National Research Council on issues relating advanced materials usage to the safety of future subsonic commercial aircraft will be completed in FY 1995. The revision and update of FAA handbooks on composite materials will continue, and the update of the handbook on manufacture and repair of fiber-reinforced advanced composites will be completed.

Benefits:

The benefits to be derived from aircraft advanced materials/structural safety research lie in the reduction of the probability of occupant injuries/fatalities by minimizing the risk of an accident and improving survivability in an accident.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
4,155	4,112	5,245

RED-61

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995

Budget Item No: 6c

R,E&D Plan No: 063-110

Program Title: Propulsion and Fuel Systems

Amount: \$4,436,000

Basis for Request:

This program establishes airworthiness criteria and related technical material to ensure the safety, reliability, and durability of powerplants and fuel systems on transport, commuter, and general aviation aircraft.

Review changes in specifications, formulations, and availability of aviation fuels and perform research necessary to maintain and enhance propulsion and fuel system safety.

Program Request:

Engine Technology

In 1995, the work on improving turbine engine failure diagnostic technology for titanium alloys will continue, and the development of a prototype inspection system will be initiated.

Also in FY 1995, experimental efforts will continue to establish the effects of hail/water ingestion on the operation, performance, and controllability of individual engine components and total engine systems. The development of an engine burnthrough model will continue in FY 1995.

In FY 1995, the development of rotor failure/fragmentation pattern/analytical model(s) will continue. Industry design standard development for containment structures and materials will be initiated. The development of rotor system diagnostic techniques and prototype hardware for predicting failure trends will continue.

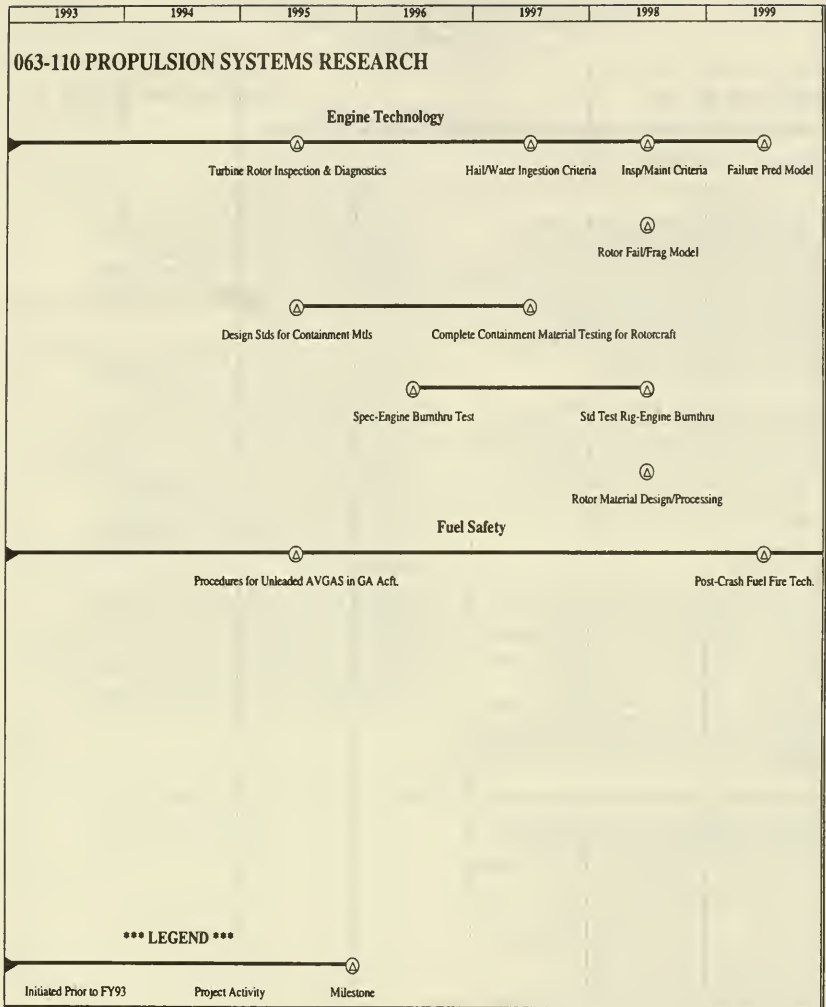
Fuel Safety

Evaluation of new approaches to improve post-crash fuel safety will continue in FY 1995, specifically directed towards the compatibility of advanced low flammability fuels with existing aircraft fuel systems. A draft fuel specification for an unleaded aviation gasoline will be prepared for consideration by the American Society of Testing and Materials (ASTM). Work will continue by supporting ASTM requirements in preparing a final specification.

Benefits:

Solutions to improve propulsion and fuel system safety and reliability will provide a framework for future technology standards in support of engine and aircraft certification. Improved guidance material, prototype hardware designs, and advanced materials will be made available to deal with in-service problems.

Propulsion and fuel systems research and development will reduce the number of accidents/incidents/contribute significantly to improving flight safety, and provide the traveling public with the highest degree of safety within the current state-of-the-art.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
2,525	2,784	4,436

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 6d

R,E&D Plan No: 064-110
064-111

Program Title: Flight Safety/Atmospheric Hazards Research

Amount: \$5,296,000

Basis for Request:

This program improves flight safety through better measures for dealing with: (1) new aircraft enhancements for flying qualities, operations, and pilot workload; (2) advances in next generation aircraft software-based digital flight control systems; (3) high intensity radiated fields (HIRF) and lightning; and (4) aircraft airborne and ground icing.

The aircraft flight safety and atmospheric hazards research addresses emerging technologies, aircraft/systems design, certification, and operational issues that will provide technical data, procedures, and guideline inputs to advisory material, standards, and rule making.

Program Request:**Flight Safety**

Flying Qualities and Operations - In FY 1995, continuing efforts will include: (1) center-city instrument meteorological conditions rotorcraft simulation and flight tests for approaches, guidance, and airspace requirements; and (2) conducting analyses, simulation, and flight tests to establish take-off and landing critical decision points for rotorcraft one engine out conditions for Category "A" operations.

Digital Systems Validation - During FY 1995, continuing efforts will include: (1) completion of the draft Digital Systems Validation Handbook, Volume III, for advanced software-based digital flight control systems information developed for certification specialists; (2) the assessment, in conjunction with NASA and industry, of emerging digital systems technology which may impact new aircraft airworthiness/certification; and (3) the joint FAA/NASA flight critical systems assessment for highly reliable fly-by-light/power-by-wire technology devices, equipments, and systems.

Atmospheric Hazards

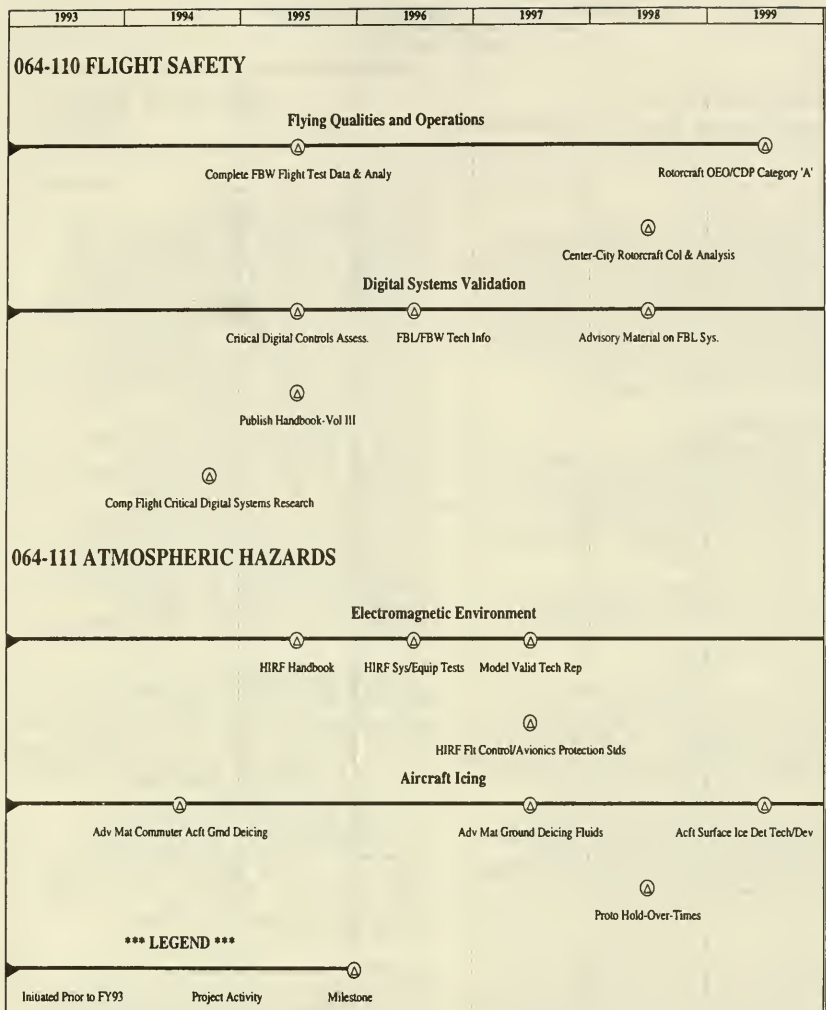
Electromagnetic Environment - During FY 1995, development of the HIRF Handbook will continue. Also, continuing efforts will include: (1) HIRF full-scale aircraft tests and

analysis; (2) transport aircraft HIRF internal environment modeling, tests, and analysis; (3) test electronic systems which perform flight essential/critical functions; and (4) transform worldwide in-flight lightning data to a common database format.

Aircraft Icing - In FY 1995, continuing efforts will include: (1) aircraft surface ice detector assessments, development, and evaluation; (2) limited validation of anti-icing fluids effectiveness in support of holdover time tables; (3) evaluation of turboprop airfoil with ice induced low stall margins; and (4) recommended design criteria for validation of analytical technologies, computer codes, and simulation methodologies.

Benefits:

This program will provide safer aircraft operations during flight by concentration on areas such as flying qualities, operations, and pilot workload, digital flight control system technology assessment, electromagnetic environment (HIRF and lightning), and aircraft airborne and ground icing.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
2,754	3,226	5,296

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995

Budget Item No: 6e

R,E&D Plan No: 065-110

Program Title: Aging Aircraft

065-111

065-112

Amount: \$22,957,000

Basis for Request:

This program aims for better understanding of the effects of aging on aircraft structures and systems and more effective design, inspection, and maintenance requirements. Develop technologies to prevent failures on in-service aircraft due to aging related structural degradation and automated systems for aviation inspectors to enforce standards for aircraft inspection and maintenance.

Program Request:

Structural Integrity

Activities include the continued development and validation of predictive methodologies to simulate crack initiation and propagation, calculate the residual strength of structures, and identify the onset of multiple site damage.

Collection of flight loads data for transport and commuter aircraft will be continued in FY 1995 to provide comparisons with design loads and inspection intervals.

Development of design software for static strength and damage tolerance evaluations of repairs will be completed. Flight test demonstrations of the effectiveness of repairs will be continued to validate the methodology.

Corrosion research will focus on constructing corrosion-assisted cracking models and validating models by assessing damage in skin panels. The development of a model of fretting corrosion and fatigue on rivet hole cracking will be completed.

Development of methods of estimating the residual life of engine static components will be continued. The FY 1995 effort includes characterizing cracking susceptibility of welded parts and developing crack growth data for elevated temperature environments.

Assessments of current level of structural integrity of aging commuters will continue along with the development of inspection-based programs to determine operational limits.

Maintenance & Inspection

The upgrading of the maintenance and structural repair procedures for civil aircraft will be completed in FY 1995 with continuing efforts to introduce new repair methods and analysis tools into field use in FY 1996. A corrosion prevention and control handbook will be completed in FY 1995 with follow-on material studies to continue in FY 1996. Repair Station criteria for airframe/engine structural repairs will be developed in FY 1995.

The development of updated inspection training material and job task definitions for aviation maintenance technicians will also continue.

Inspection activities are focusing on improvement of inspection reliability through evaluations of enhanced and new innovative techniques, and automated processes. Efforts to address the inspection of titanium engine components for defects, which began in FY 1993, will continue through FY 1995.

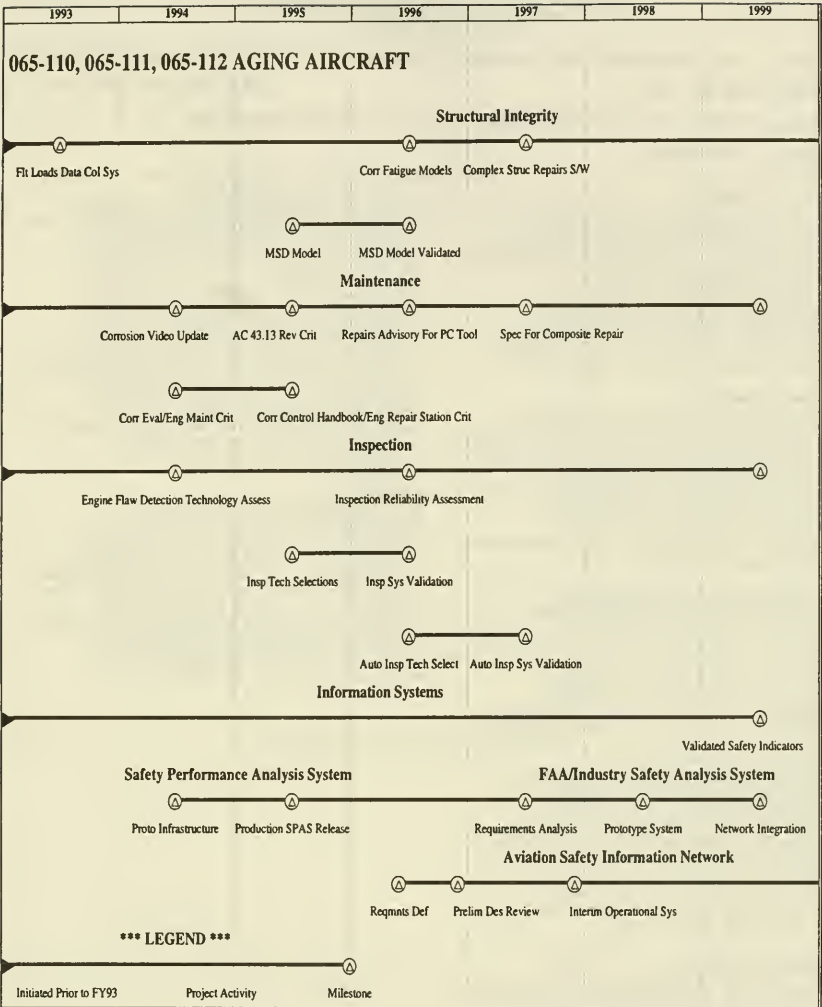
Information Systems

The development of the Safety Performance Analysis System (SPAS) for the automated retrieval and analysis of safety critical data, will continue during FY 1995. The production system will be released by the end of FY 1995.

The development of an automated aviation safety information network, for distribution of safety critical information between the FAA and industry, will be initiated in FY 1995. This system will provide access to non-government data sources and international data collection standardization.

Benefits:

This program will enhance aviation safety through improved understanding of aircraft structural performance and of critical operational and maintenance information. Structural improvements resulting from the identification of structural failure mechanisms and the analysis of safety critical performance information will ensure airworthiness of the existing fleet and new generation airplanes.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
20,638	24,655	22,957

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 6f

R,E&D Plan No: 066-110

Program Title: Aircraft Catastrophic Failure Prevention Research

Amount: \$2,705,000

Basis for Request:

This program responds to the need to reduce the number of catastrophic aircraft accidents which result from turbine engine, structural, and flight systems cascading failures. Legislation (Public Law 101-508) requires the FAA to establish and direct a research effort to prevent aircraft system failures which could result in a catastrophic consequence.

Program Request:

Research was initiated to develop technologies and methods to assess the risk and prevent defects, flaws, design errors, and failures in the three major aircraft system areas as described below. An integrated aircraft catastrophic failure prevention research program plan has been developed. Preliminary risk assessment studies were initiated.

Turbine Engine Failure Hazards

The failure of turbine powerplants and auxiliary power units rotating components can result in the release of high energy fragments that are a serious hazard to flight critical systems and occupants. Service experience has shown that this hazard can have a catastrophic consequence.

Turbine rotor failure characterization/risk assessment studies which began in FY 1994 will continue through FY 1995. Data collection for development of rotor fragment liberation/barrier protection models begun in FY 1994 will continue through FY 1995. Development of advanced engine rotor fragment barrier/containment material concepts will continue in FY 1995.

Airframe Failures

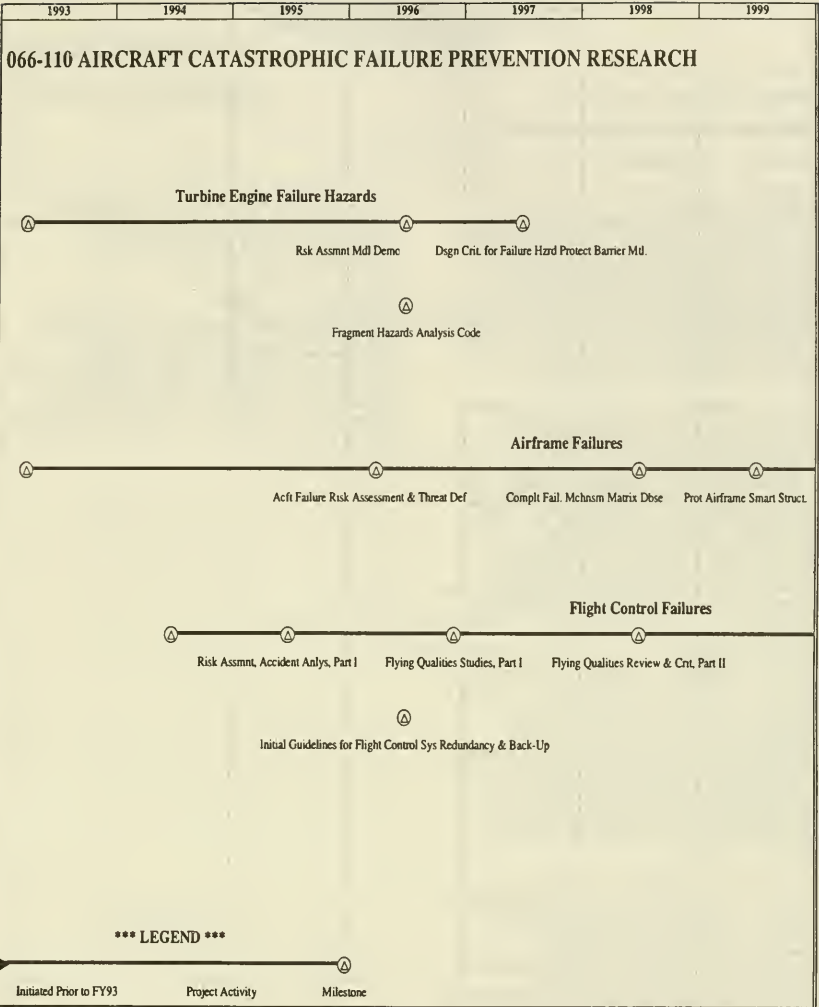
In FY 1995, a transport failure vulnerability risk assessment code will be completed; a joint DOD/FAA/NASA effort to evaluate and develop micro-sensor/fiber optic (smart structure) in flight monitoring technology for the next generation aircraft will continue; and data collection and procedures for new aircraft airframe structural load design criteria will be initiated.

Flight Control Failures

Fatal transport accidents involving flight control system problems under certain failure scenarios present a particularly difficult piloting task for flight crews. In FY 1995, the first phase of accident analysis and failed mode risk assessment will be completed. Flight control system architectures and flying qualities appraisal studies will be initiated in FY 1995 and lead to the development of guidelines and assessment of the viability of failed-mode control options (reconfigured and substitute flight controls) for emergency conditions.

Benefits:

This program will improve the reliability, durability, and failure prediction of onboard systems whose failure could produce a catastrophic consequence. It will also provide the means to prevent onboard problems from resulting in tragic consequences. Failure prevention research will reduce the risk of catastrophic accidents, minimize hull damage, and reduce serious injuries and fatalities.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
837	2,701	2,705

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995

Budget Item No: 6g

R,E&D Plan No: 067-110

Program Title: Fire Research

Amount: \$5,028,000

Basis for Request:

The Aviation Safety Research Act of 1988 requires the FAA to perform long-term fire research. The goal is to develop technologies that eliminate fire as a cause of fatalities in aircraft accidents. To achieve this goal, the FAA must develop the means to assess and significantly improve fire safety characteristics of individual aircraft designs and assemblies.

The Fire Research Program is organized into highly specialized long-term research thrust areas as defined in the Aviation Safety Research Act of 1988. It includes a number of technical thrusts previously managed within the Aircraft Systems Fire Safety Program. Areas such as fire modeling and fire resistant material development can be derived from emerging technologies, whereas efforts under the Aircraft Systems Fire Safety Program concentrate on improved applications of existing products.

Program Request:

Advanced computer fire models will be applied to predict effects of burning aircraft interior materials on passengers as well as on critical flight systems in FY 1995. The likelihood of in-flight fires starting from specific aircraft components will be evaluated through application of risk assessment technologies. This risk analysis will provide base scenarios for the advanced computer models.

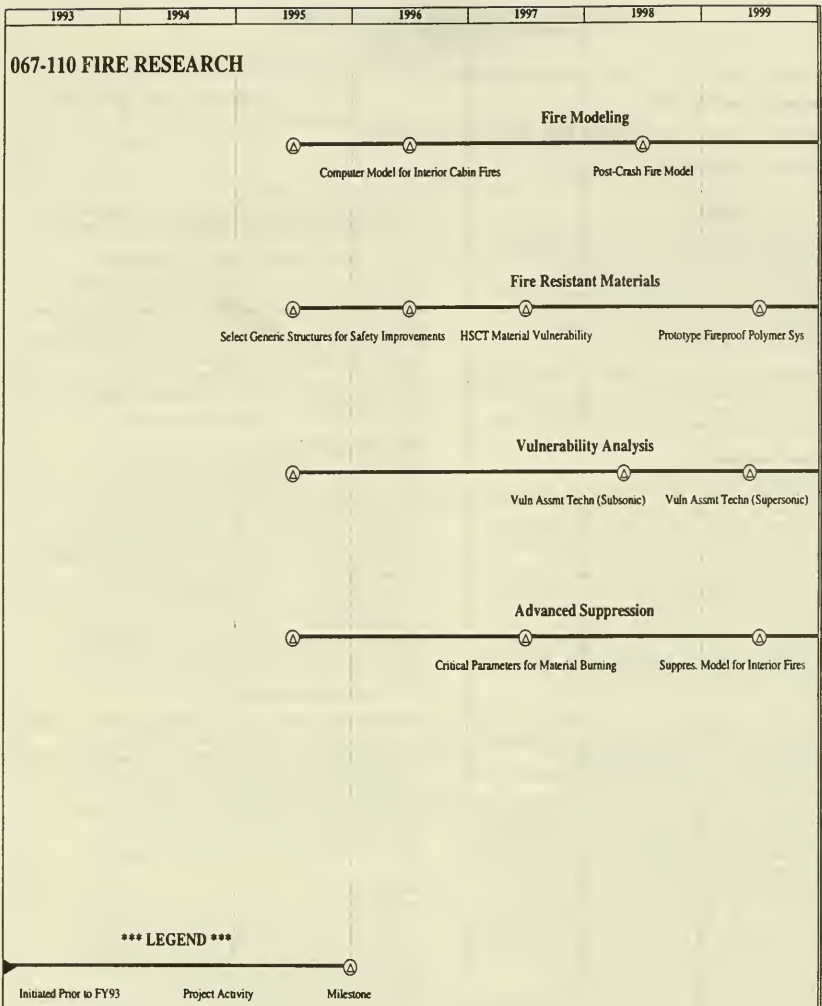
In FY 1995, university grants will be used to synthesize new high temperature polymer systems for aircraft cabin interiors. Fundamental studies of underlying chemical processes associated with material flammability will provide inputs on material behavior for the advanced computer fire models. In parallel with the study of chemical thermal degradation in FY 1995 will be application of molecular dynamical simulations to relate polymer structure to material flammability.

A fundamental long-term effort on aircraft advanced fire suppression will be initiated in FY 1995. This effort will be aimed at defining mechanisms

that lead fires to self extinguish. The efforts will include fire modelling approaches along with effects of material additives and material molecular composition.

Benefits:

Long-term fire research will provide the technical basis for substantial fire safety improvements in next generation aircraft. The research will also lead to longer term new devices and advanced systems that will provide added fire safety to current generation aircraft.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
0	0	5,028

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 7a

R,E&D Plan No: 071-110

Program Title: Explosives and Weapons Detection

Amount: \$23,675,000

Basis for Request:

The need for accurate and effective explosives detection continues with increasing importance as more sophisticated terrorist threats develop. This project seeks to both improve existing capabilities and to develop new capabilities based on emerging technologies.

The project will also ensure continuing airport and aircraft security by developing new explosives/weapons detection systems.

Program Request:**Explosives Detection**

In FY 1994, work continued on the development of two basic types of explosive detectors: one designed to collect, analyze, and identify trace vapors/particles from different explosives; and the other designed to use electromagnetic energy or nuclear techniques to penetrate and identify bulk explosives based on their elemental or structural composition. Both vapor and bulk explosive detectors are applicable to screening a wide variety of objects.

Prototype systems using nuclear, x-ray, and electromagnetic methods to screen checked baggage continued the development cycle while development for cargo screening was initiated. Evaluations of prototype vapor portals were completed in FY 1994. A number of new detection technologies using mass spectrometry and biosensor techniques were identified and evaluated. Ion mobility spectroscopy and surface acoustic wave detection systems were completed and tested. A computerized x-ray tomography prototype was deployed for field evaluation, and several units were sold to overseas airports. A coherent x-ray scatter prototype collected data at an airport and began field evaluation. X-ray backscatter, high resolution x-ray, device detector systems and dual energy/dual view x-rays were bought by and installed for evaluation at foreign airports.

The search for new concepts and innovative approaches from industry and academia continued to be a major priority of the program in FY 1994 as

well as a systems integration approach for bulk and vapor detection devices.

In FY 1995, operational test and evaluation of combined bulk and vapor systems will be completed at an airport. Component development such as accelerators, detectors, and targets for nuclear systems will be ongoing for the long term to reduce the size, complexity, and cost and to reduce risk when initiating prototype system development.

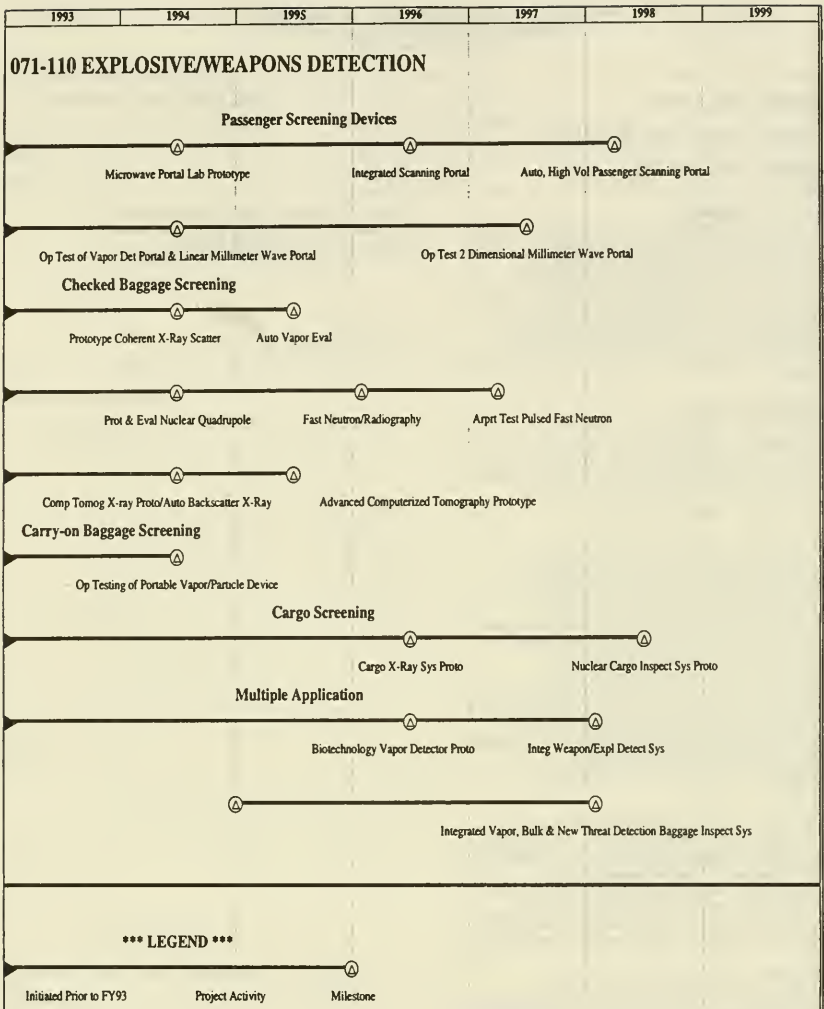
Weapons Detection

In FY 1994, commercial detection devices were evaluated and new standards developed to assure the continuing effectiveness of these systems. Methods of enhancing the performance of the current generation of screening systems continued to be investigated. Alternate methods to detect non-metallic handguns, as well as flammable liquids, were also investigated. A real time millimeter wave passenger screening laboratory model was evaluated in the laboratory. A dielectric bottle screening system was evaluated at an airport.

In FY 1995, laboratory evaluation of a real time millimeter wave passenger screening portal system will begin. An integrated vapor and millimeter wave prototype to screen passengers for weapons and explosives will be tested in the laboratory. A magnetic resonance prototype bottle screener will be evaluated in the airport.

Benefits:

Improved explosive detection systems and devices will decrease vulnerability to terrorist acts against U.S. air carriers, airports and the American people. Automated systems will meet increased passenger flow while minimizing cost. Continued near and long term development will impact the economic viability of the American industry to compete in the global market.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
26,427	22,829	23,675

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 7b

R,E&D Plan No: 073-110

Program Title: NAS Security

Amount: \$1,977,000

Basis for Request:

The FAA has conducted a vulnerability assessment of domestic airports. This study addressed current airport security level, assumed level of threat, and contingency planning for response to a heightened threat. This vulnerability assessment revealed weaknesses at our domestic airports when confronted with a higher level of threat.

timely updates for threat-risk assessment, standards, and adaptive human factors requirements.

Program Request:

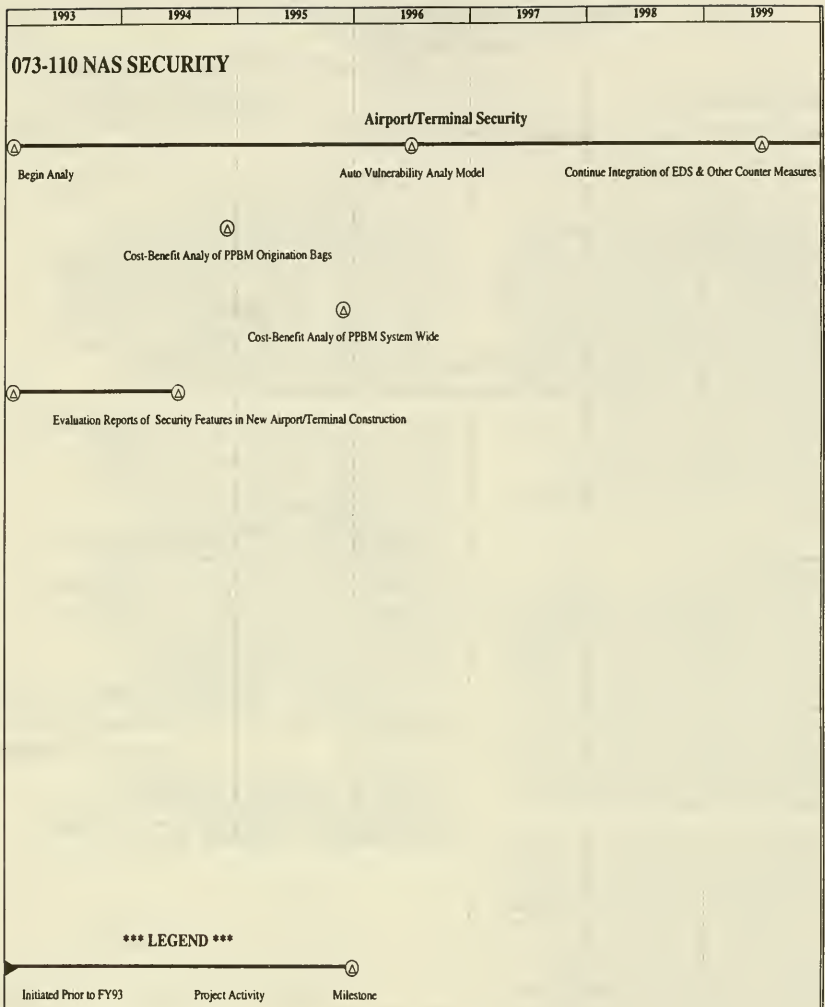
The FAA has conducted a threat and risk assessment of components of the National Airspace System (NAS). This study addressed current threat levels and the assumed level of risk for certain FAA owned assets.

In FY 1994, a cost analysis for implementation of Domestic-wide Positive Passenger Baggage Matching (PPBM) was initiated. An enhanced system design and operational procedures were developed for security approaches to effectively counter higher levels of threat while maintaining economic viability, responsiveness, and maintenance of passenger flow. Security designs were implemented and integration of new technologies and procedures to counter identified new threats and vulnerabilities will continue in FY 1995.

In FY 1995, an evaluation of radio frequency microtransponders to reduce costs for baggage handling in PPBM will be completed. Development of simulation tools for modeling effects of proposed security changes and introduction of Developmental Explosive Detection System (EDS) will continue.

Benefits:

Applied systems integration and operational evaluation of technologies and procedures for airports and FAA facilities will determine which technologies and procedures can be implemented in the NAS. It will also identify those areas where further development is needed. Operational test results and man-machine conflicts will be fed back into the security system integration configuration, which includes human factors, to provide



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
4,062	2,454	1,977

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 7c

R,E&D Plan No: 076-110

Program Title: Aviation Security Human Factors

Amount: \$3,124,000

Basis for Request:

The Aviation Security Improvement Act of 1990 mandated that the FAA improve human performance aspects of overall security system performance. The FAA is meeting this challenge through its Aviation Security Human Factors (ASHFP) Program to enhance human performance through R&D to identify and exploit technological innovations. The program meets this goal by identifying human performance problems and determining solutions including changes in equipment design, operational procedures, personnel selection and training. Solutions ensue from systematic research efforts in collaboration with other government agencies, the aviation industry, and academia.

Program Request:

The ASHFP enhances overall system performance through R&D to identify and resolve human performance problems. Programmatic thrusts in 1994 emphasized R&D on baggage screening and passenger profiling. Baseline x-ray detection probabilities were determined, system capabilities were enhanced through an emphasis on operator training and increased equipment capability, and systems were operationally tested. The other program effort resulted in the development and testing of a passive domestic passenger profiling system. This system was then automated.

In accordance with Public Law 101-604, the ASHFP will conduct R&D in 1995 on x-ray screening, passenger profiling, and human systems integration (HSI). Screening R&D focuses on the Screener Proficiency Evaluation And Reporting System (SPEARS) technology for enhancing operator acquisition and sustainment training as well as performance monitoring. SPEARS work consists of: (1) correcting system deficiencies identified in the initial operational test and evaluation, (2) confirming that functional requirements were ultimately met by conducting a follow-on operational test and evaluation, (3) identifying traits and abilities for optimal x-ray screener performance, and (4) developing the technical data package and certification standard for SPEARS.

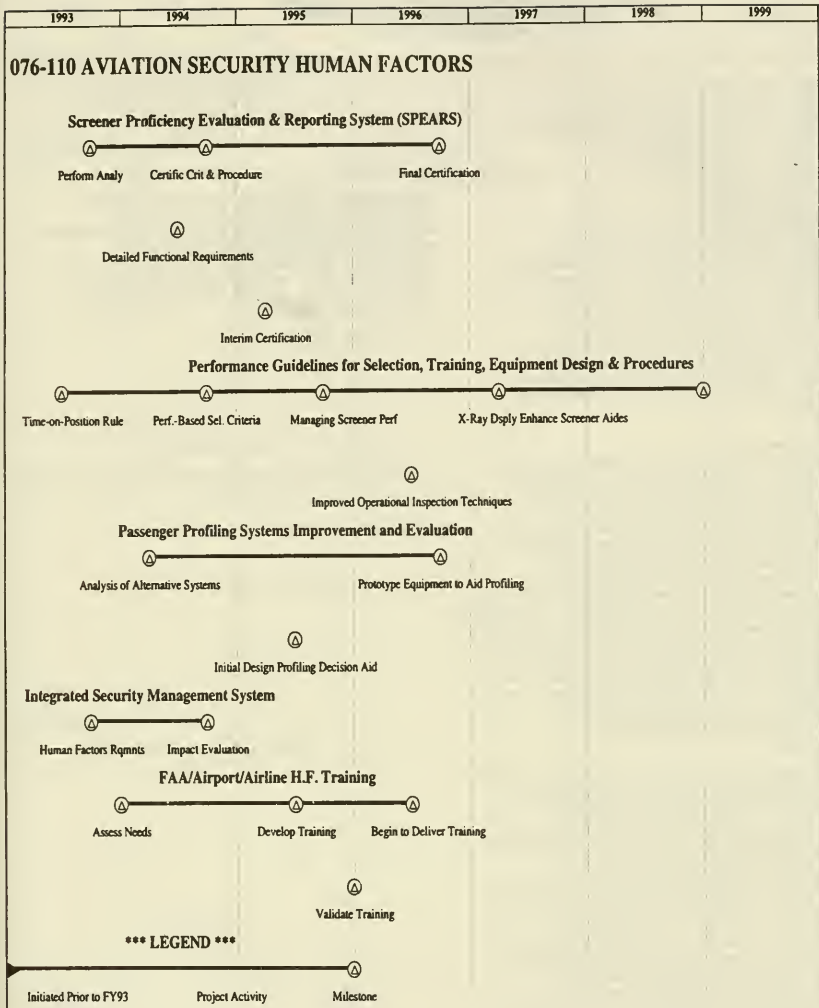
Profiling projects include:

(1) extending automated domestic passenger profiling to the other two major reservation data systems (APOLLO, SABER), (2) conducting passenger survey research to determine acceptability of costs/delays due to increased security precautions, (3) developing and testing active domestic profiling techniques, and (4) developing implementation techniques for passive and active domestic profiling.

The HSI efforts include: (1) assessing the FAA headquarters (ASC) needs for human factors training and providing instruction required, (2) evaluating human factors aspects of screening within large cargo facilities, (3) evaluating detection systems involving emerging technologies (e.g., bottle screening, millimeter wave detection), (4) optimizing combined technologies through R&D on component integration within futuristic screener stations, (5) studying crisis team integration and management and developing training techniques to enhance cohesion and efficiency, and (6) studying implementation of the 'challenge rule', identifying performance shortfalls and necessary revisions.

Benefits:

Passenger safety will be greatly increased through substantial restrictions on opportunities to bring dangerous devices aboard aircraft.

**FUNDING SUMMARY (\$000)**

FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
951	2,845	3,124

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 7d

R,E&D Plan No: 075-110

Program Title: Aircraft Hardening

Amount: \$7,828,000

Basis for Request:

The threat to aircraft survival due to in-flight detonation of a small explosive device continues to be significant. This program focuses on determining the minimum size explosive that must be detected to ensure aircraft survivability. It also assesses methods of increasing survivability through a reduction in blast effects and/or an increase in aircraft capability to resist blast through design changes to structure or systems.

increasing the survivability of the aircraft from difficult to detect explosive threats as well as mitigating vulnerability to other terrorist threats. In addition, cost trade-offs with detection equipment can be better analyzed and a detection requirement better defined.

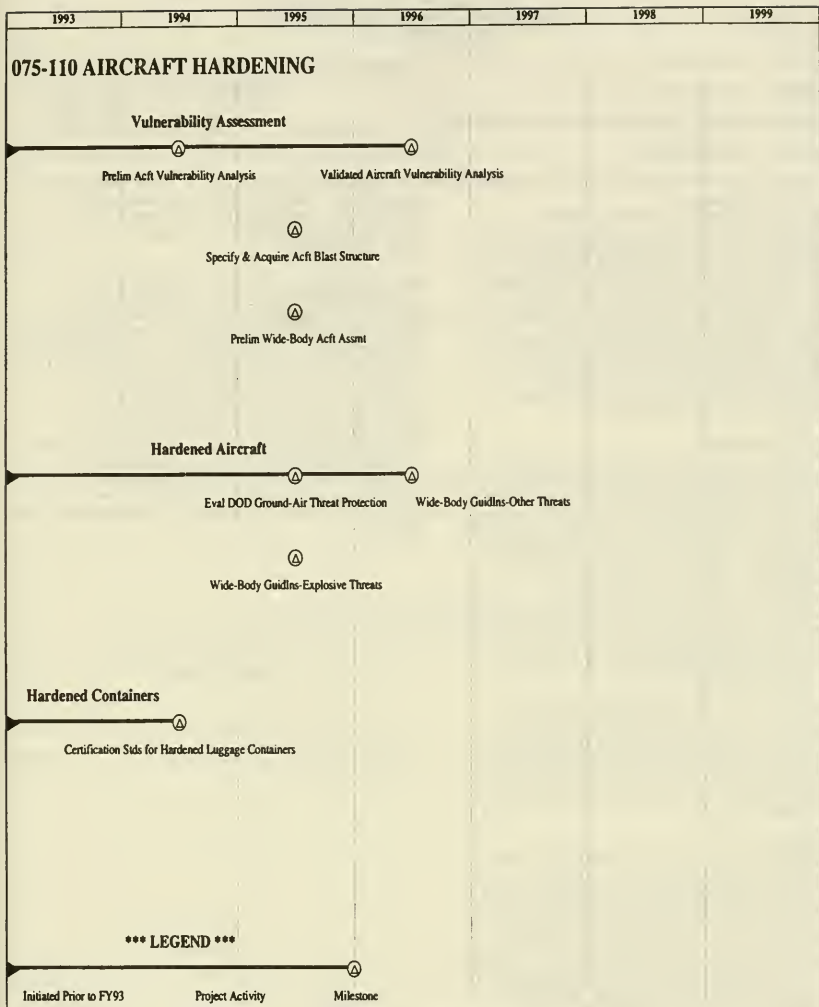
Program Request:

Through FY 1994, the methodology for determining blast effects on aircraft structure and systems as well as a preliminary assessment of aircraft vulnerability were completed. A feasibility study and improved design analysis work was accomplished on modified baggage containers and a preliminary certification standard for blast mitigation was published. Actual explosive tests on aircraft structure and components were conducted to validate the vulnerability methodology and verify the mitigation properties of containers. Prototype containers were tested in terms of operational effectiveness as well as blast resistance.

In FY 1995, a full scale testing device will be acquired and the analysis of wide-bodied aircraft by aircraft manufacturers will be validated. New design techniques which could increase aircraft resistance to explosive effects will be identified, analytically assessed, and validated. The final report on vulnerability of commercial aircraft to explosive effects will be coordinated with the detection community. The analysis of future aircraft designs and the consideration of alternate threats, such as the potential impact of surface-to-air missiles on commercial aviation, will continue.

Benefits:

Improved in-flight safety resulting from increased aircraft survivability and a better definition of the minimum requirement for detection of explosives. Lives will be saved by



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
4,490	7,802	7,828

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 8a

R,E&D Plan No: 081-110

Program Title: Flightdeck Human Factors

081-111

081-112

Amount: \$6,890,000

Basis for Request:

This program will improve human performance in the cockpit by developing a better understanding of human limits and capabilities and the root causes of human error; and using this knowledge to improve systems design, operating procedures, and airman selection, training, and certification. Human error is listed as a probable cause in approximately 65% of fatal civil air transport accidents, and a higher proportion of general aviation accidents.

Program Request:

In FY 1995, a comparative analysis of the two predominant types of cockpit automation design will be completed to identify and prioritize safety issues. Analysis and simulator testing of these issues will then continue, to develop recommendations for improved cockpit automation design, operational procedures, and training. The feasibility of using recorded flight data for the automated measurement of flight crew performance and training will be demonstrated with an initial prototype system.

Criteria will be developed for the evaluation of crew decision making skills. Simulator and flight tests of simplified, more readable instrument approach charts will be completed, and chart design and evaluation guidelines published.

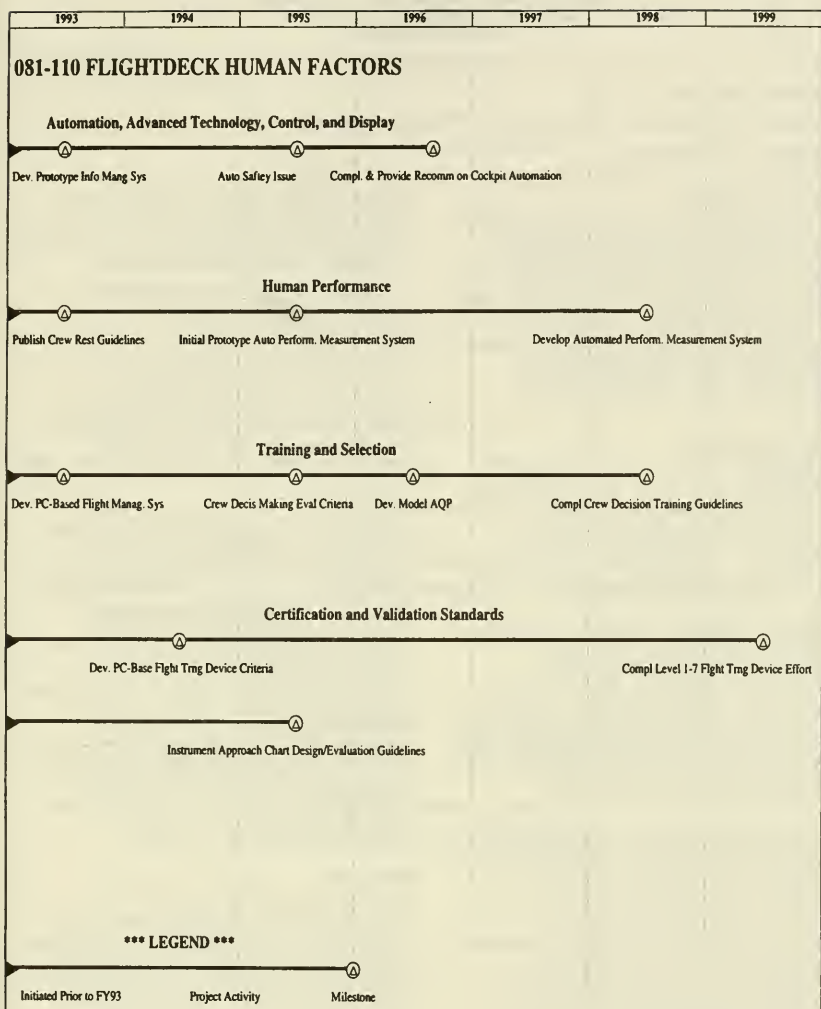
Benefits:

This program primarily addresses the FAA major mission area of safety, with additional benefits in efficiency and productivity. Aviation insurance data shows that, in 1992 alone, accidents of western-built jet transport aircraft cost 735 lives and \$850,000,000. Human error accidents thus cost approximately \$552,500,000 and 478 lives in 1992 (based on the 65% alluded to above).

The 1970-1992 data trend predicts human error accidents will cost \$650 million annually by the end of the decade unless their rate is reduced. A program of flight safety enhancement through improvements in flight deck human engineering, flight crew performance standards, airman

selection, and initial and recurrent training, needs only to prevent a single major accident to pay for itself many times over.

New flightdeck technology and crew training methods will provide further benefits in the form of increased efficiency. These benefits will accrue to the individual operator in terms of reduced training costs and improved capability of aircraft and crews to fly fuel and time efficient profiles. Overall system efficiency and capacity will be improved by the ability of aircraft and crew to more precisely and reliably follow trajectories directed by an increasingly automated ATC system, and by fewer traffic flow disruptions from caused by judgement errors.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
7,963	7,563	6,890

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995

Budget Item No: 8b

R,E&D Plan No: 082-110

Program Title: Air Traffic Control Human Factors

Amount: \$6,198,000

Basis for Request:

This program will determine the effects of automation and work environment on the performance of current and next generation air traffic controllers. It will also develop improved methods of controller selection and training, and methods of reducing the adverse effects of controller errors. Methods and standards for consistent application of human factors engineering in the development and implementation of systems for the National Airspace System will also be established.

Program Request:Automation Impact on Controllers and ATC Teams

In FY 1995, a project to identify and resolve human factors issues inherent in the Airport Surface Traffic Automation System (ASTA) will be completed. Lessons learned from this study will have direct application in many other advanced automation systems.

Human Performance and Safety Monitoring

A method to assess causal factors related to En Route and TRACON operational incidents will be developed. Using computerized recreations of radar data for testing, a reference guide will be produced that relates job tasks to causal factors and identifies any possible linkages. The end result will be a new tool to investigate operational errors.

Research will continue on controller eye scanning behavior. Data will be used to teach scanning techniques that increase situational awareness resulting in decreased operational errors. Eye scanning behavior can be used to evaluate proposed radar displays, consoles, and work stations. Research will also continue on assessments of other significant factors associated with controller performance, including fatigue, over-the-counter medications, and the development and evaluation of improved shift management strategies. Test results of a three dimensional sound synthesizer for possible use in tower cabs will be available in FY 1995. If this system proves to be adaptable for use by air traffic controllers, it will provide them with

auditory clues to the direction and approximate distance of aircraft under their control. The additional information should increase situational awareness - thus enhancing safety.

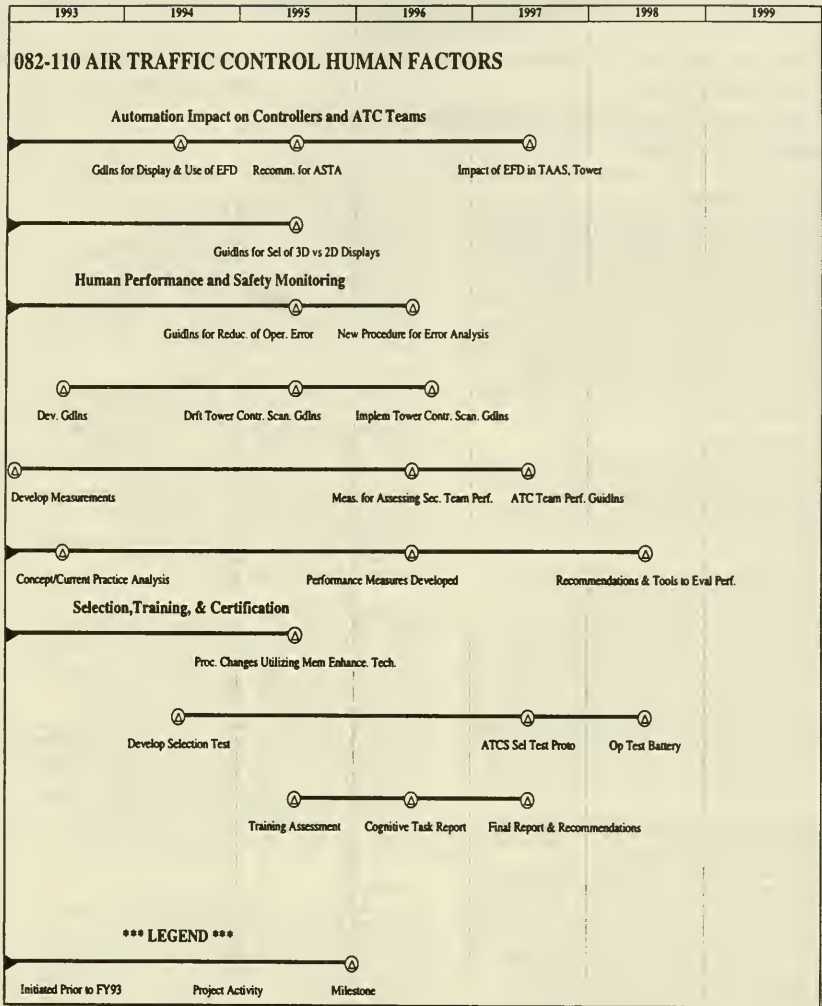
Validity testing and evaluation of the feasibility of establishing a controller performance baseline and methodology will continue. This initial study will lay the groundwork for extensive future research into issues involving controller performance. A reliable and accurate baseline can be used in a variety of ways to explore the relationship between diverse workload activities and the potential impact on the air traffic controller.

Selection Training and Certification

Outcomes from existing research and evaluations of future systems requirements will be used to define performance parameters and develop selection instruments for the air traffic controller of the future. The role of team training in current and future systems will be evaluated. Research will also be introduced to enhance the effectiveness of tower cab training programs. Emphasis will be placed on decision-making skills in complex, high density facilities. These results will provide facility training managers with strategies and guidelines for teaching tactical decision-making skills. This project will utilize previous research conducted by the U.S. Navy.

Benefits:

This program addresses the major mission areas of efficiency, productivity, and safety. Efficiency of operations for users of the National Airspace System will be improved by assuring that advanced technologies are effectively utilized to support the controllers' role. Proper attention to human factors in system design and operations, improved controller selection and training methods, and monitoring of performance trends will result in lower personnel and training costs. System safety will be enhanced by a reduction in opportunities for operational errors and a more effective controller work force.



FUNDING SUMMARY (\$000)

FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
5,933	7,192	6,198

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995

Budget Item No: 8c

R,E&D Plan No: 083-110

Program Title: Airway Facilities Maintenance Human Factors

Amount: \$2,333,000

Basis for Request:

This program will ensure that Remote Maintenance Monitoring and Maintenance Automation System procedures and equipment will properly support the role of the maintenance technician and minimize human errors, and that selection and training methods will maximize work force productivity. The trend over the past five years has been an increasing number of more complex systems to be maintained by fewer technicians, many of them approaching retirement age.

Program Request:

In FY 1995, Airway Facilities (AF) Human Factors will focus on four areas: Manpower, Personnel and Training; Organizational Design and Management; Human-centered Automation; and Human Performance.

Manpower, Personnel, and Training

The job task analyses for AF maintenance positions completed in FY 1994 provides the foundation for continued expert systems development in the areas of training, job aids and human-computer interface improvements. A prototype expert system to be used as a job aid will be completed in FY 1995. This prototype will include a training system and hypertext documentation. It will be used to develop requirements for a system that can be procured for radar analysts.

Organizational Design and Management

Investigation in FY 1994 of the current AF organizational structure's communication and information exchange paths, management structure, and areas of efficient and inefficient operation will establish a baseline for research planned for initiation in FY 1995. The FY 1995 task will build on this and other related research baselines to address the numerous AF workforce modernization issues pertaining to current and future assessment, recruitment, and training. One key product includes new knowledge, skills, and abilities (KSA's) for people dealing with cognitive functions involved in managing automated systems (i.e., situation awareness, planning and processing, and decision making under time constraints). In addition,

this research will provide a cost-training effectiveness model for determining the best advanced instructional technology system for modernizing AF workforce KSA's. New certification qualifications will be defined for the AF system specialist predicated on the new KSA's, previous completed job-task analyses, and training performance criteria.

Human-Centered Automation

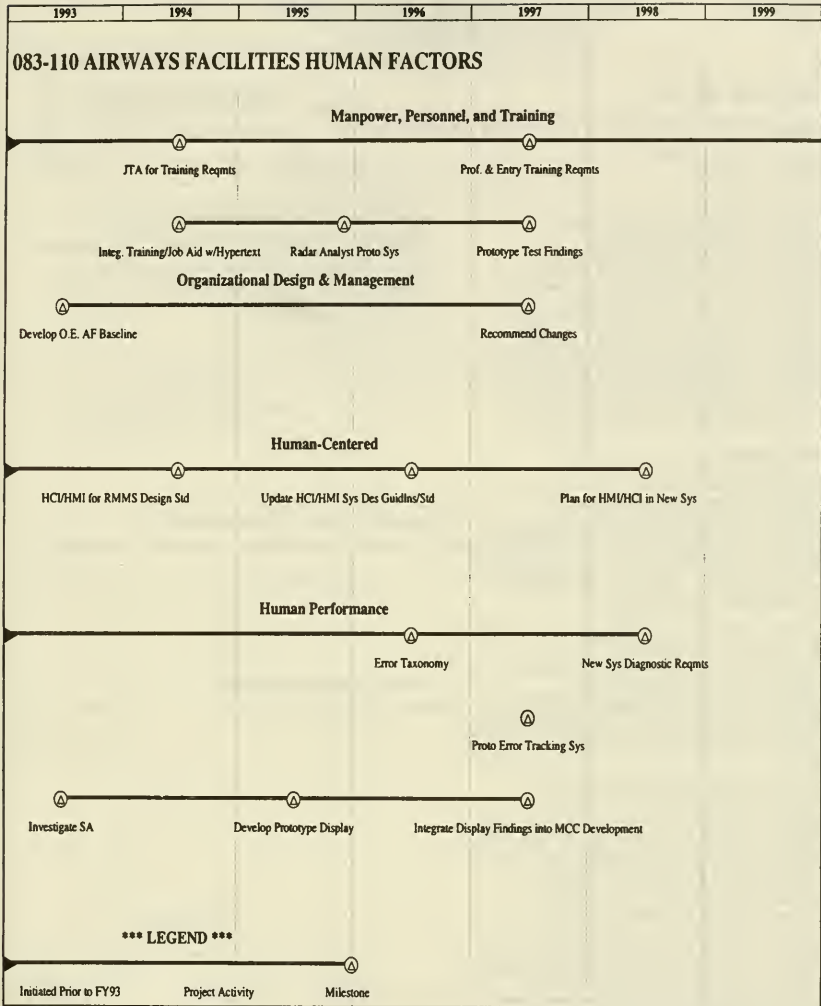
This work continues the development and application of human-system acquisition standards, and display symbology for alarm standardization. In FY 1995, a test will be conducted which applies the newly developed human-system acquisition standards to the AF system acquisition process. Guidelines will be developed for streamlining information transfer and communications between AF personnel and the new systems being procured.

Human Performance

Work in this area includes research to increase situation awareness and reduce human-related errors in the AF environment. The situation awareness work will help in developing the operator interface for maintenance control centers where the operator's assessment of the current and projected situation is a fundamental requirement for achieving successful performance. In FY 1995, a prototype control center display, developed to help maximize operator performance in monitoring, detecting and diagnosing AF system failures, will be evaluated.

Benefits:

This program addresses the major FAA mission areas of efficiency, productivity, and safety. Significant cost savings will result from a more productive and better trained workforce when technician capabilities are matched with the evolving new systems, and good human engineering minimizes the effects of human limitations and adverse environments. Benefits will accrue to users through more efficient operations and a high level of service continuity. High reliability also contributes to system safety.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
3,455	3,692	2,333

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995

Budget Item No: 8d

R,E&D Plan No: 084-110

Program Title: Flightdeck/ATC System Integration

Amount: \$2,199,000

Basis for Request:

This program will decrease the frequency of flightdeck/ATC communications errors, ensure compatibility of new generations of aircraft with the evolving automated NAS and determine appropriate allocation of functions between the flightdeck and ATC. A total system approach will use transport aircraft simulators, linked to a realistic ATC simulation, to research and refine proposed technologies and procedures prior to operational implementation.

system interactions prior to operational implementation of new technologies and services, design induced human errors will be reduced. Properly matching NAS and aircraft capabilities and procedures will result in more efficient use of both aircraft and ATC resources.

Program Request:

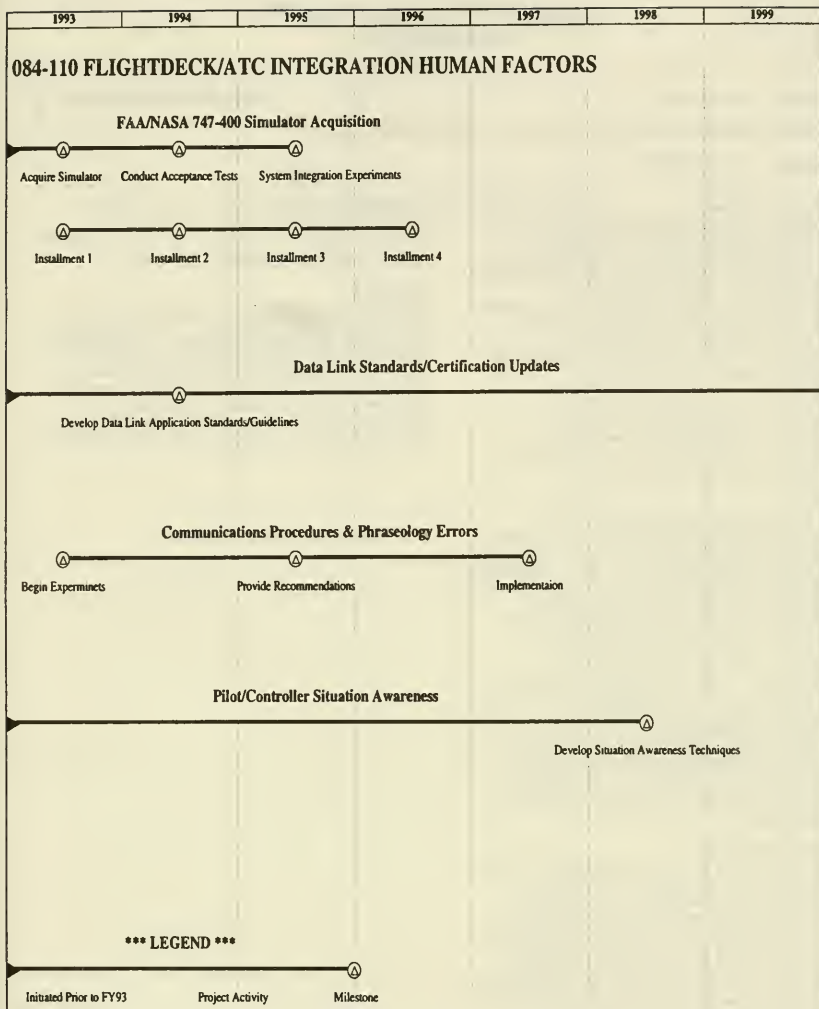
Joint acquisition of a current technology glass cockpit (B-747-400) simulator supports NASA/FAA's objectives in the fields of advanced cockpit technology and ATC integration. In FY 1995, the FAA, will continue to support the acquisition of the glass cockpit simulator under an existing joint agreement with NASA.

In FY 1995, laboratory experiments will be continued to assess the effectiveness of recommended changes in pilot/controller communication procedures and phraseology. These recommended changes will be provided to regulatory personnel for implementation in FY 1997.

In FY 1995, work will continue on developing compensation techniques to ensure pilot/controller situation awareness. Research will provide: data link services and operational protocols that will enhance the performance capabilities of flightdeck and ATC personnel; procedural and design solutions that will reduce the likelihood or minimize the effect of communication errors; and design and/or procedural solution to compensate for the loss of party line information. As automation and data link systems comes on-line, techniques must be developed to keep human beings in the decision making loop. This work will be completed in FY 1998.

Benefits:

This program primarily addresses the major mission areas of safety, efficiency, and productivity. By identifying and resolving unanticipated



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
3,868	4,342	2,199

RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995

Budget Item No: 8e

R,E&D Plan No: 085-110

Program Title: Aircraft Maintenance Human Factors

Amount: \$1,579,000

Basis for Request:

The human factors R,E&D plan for aircraft maintenance is focused on error management and influencing the private sector through both information and validated "best practice" guidelines. It has been over 20 years since a descriptive baseline of the look of aviation maintenance technicians (AMT's), their equipment, workplace environment, work description, and information and communication problems has been obtained. Increasing aircraft automation, changing materials and improved electronics have changed the nature of AMT requirements and training.

This program will cultivate and validate training methods to improve performance of aircraft maintenance and inspection personnel. It will generate regulatory support materials to revise FAR Parts 65 and 147, and develop information on advanced technology, techniques and job performance of aircraft maintenance industry personnel, and FAA aviation safety inspectors. The program will produce information on how workplace environment and work conditions affect technician performance. In addition, FAA has a need to analyze the human factors of information management for aviation safety inspectors. These studies will also be accomplished in this program.

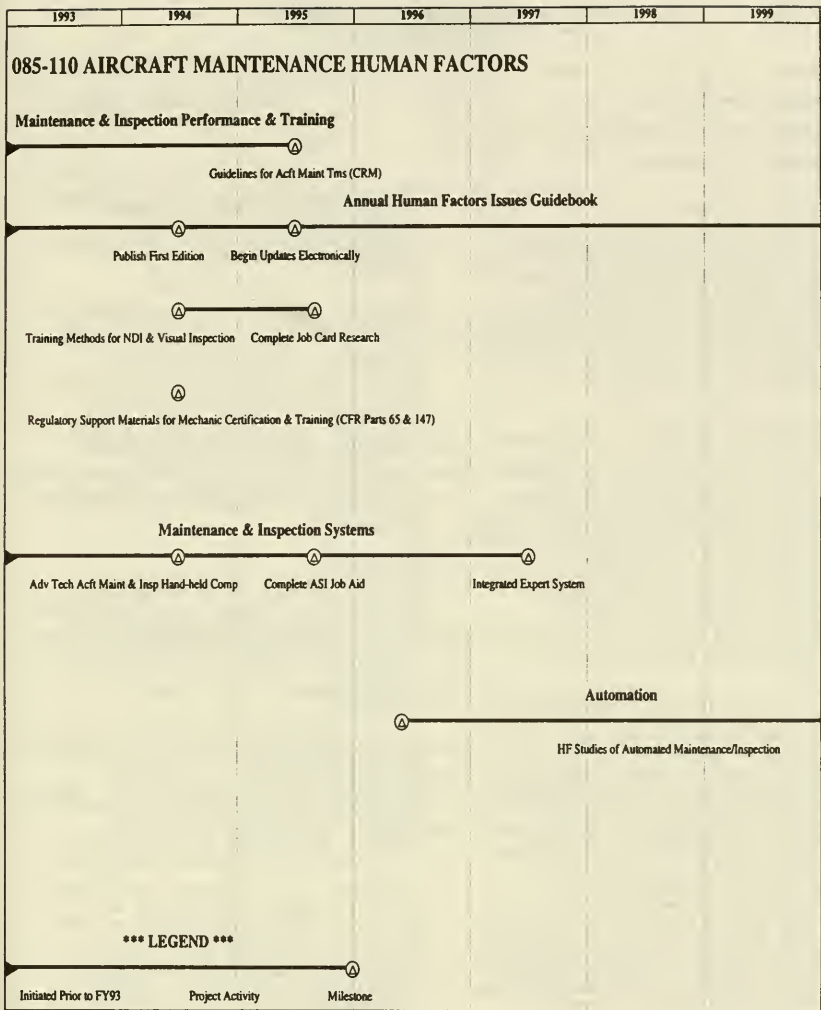
Program Request:

In FY 1995, Aircraft Maintenance Human Factors will continue to evaluate applications of advanced technology. Newly developed pen-based computers will be studied in order to determine their utility for FAA aviation safety inspectors (ASI). A task to study design of work cards will be completed. Work cards are printed documentation used by mechanics to complete inspection and repair procedures. A study will examine team performance and team training in aircraft maintenance. This task will seek to apply knowledge gained on team-based work in other professions to the aircraft maintenance realm. An electronic version of the Human Factors Guidebook will be published.

These efforts are part of an agency-wide, NASA and industry effort to provide improved safety in maintenance and inspection of aircraft.

Benefits:

Reduction in accidents and incidents in air carrier operations attributable to maintenance and inspection. Reduction in human errors through an integrated system approach to maintenance and inspection. Enhanced training methods, job performance aids, improved human engineering of equipment, as well as improved FAA oversight and regulations.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
1,412	2,134	1,579

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 8f

R,E&D Plan No: 086-110
087-110

Program Title: Aeromedical Research

Amount: \$6,130,000

Basis for Request:

These programs: (1) assess which types of persons are physiologically and clinically adaptable to the civilian flight environment, and what types of injury and death occur in this environment; and (2) address agency-wide performance issues associated with reducing management levels, introducing new technologies into the workplace, and balancing the workforce in terms of ethnicity, age, and gender.

Resulting information is used to:

(1) evaluate, develop, and recommend protective equipment and procedures; (2) generate specialized guidance to regulatory staff; and (3) develop improved policies and procedures for employees to perform efficiently, both individually and as a team, in response to the changing workplace and new requirements. An in-house cross-functional research staff, with stability to maintain long term programs of research and the flexibility to respond rapidly to emerging issues and concerns, is provided.

Note: For FY 1995, the Workforce Performance Optimization Project has been added to this budget line and consolidates activity that was formerly spread throughout Budget activity 8, Human Factors and Aviation Medicine. The realignment of these activities account for the majority of the increase in this Budget line from FY 1994. No new funding is involved. The work conducted in this project is specifically in response to Section 5(e) and Section 8 of the Aviation Safety Research Act of 1988, for CAMI to conduct research associated with "agency work force optimization", including training, equipment design, reduction of errors, and identification of candidate tasks for automation.

Program Request:**Aeromedical Research**

Major products projected for FY 1995 include: (1) quantitative bioengineering criteria to prevent cervical spinal injury; (2) technical standards for child flotation devices; (3) standards for new protective breathing modalities; (4) aircraft

evacuation standards and computer simulations that minimize dangerous trials; and (5) clinical/human factors assessments of all major aircraft accidents.

Workforce Performance Optimization

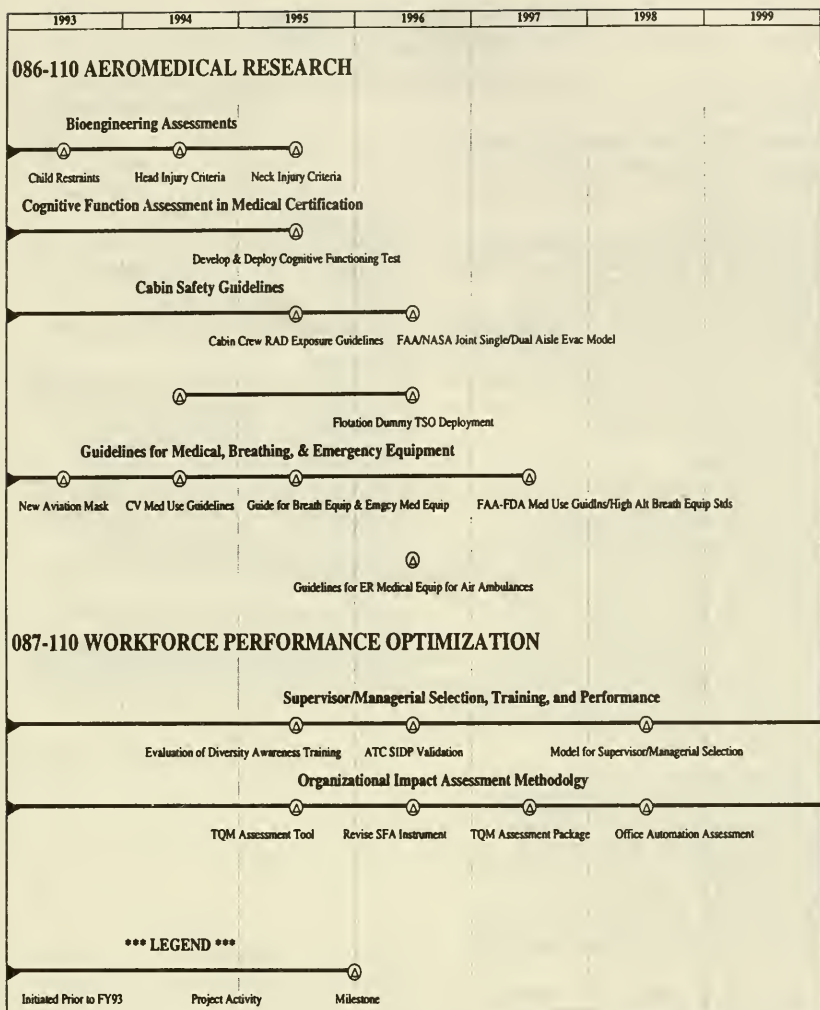
Products for FY 1995 include: (1) an improved tool for identifying the work environment factors that impact employee performance, efficiency, and safety; (2) the identification of individual, situational, and group factors that reduce errors and lead to effective work team performance; and (3) identification of operator behaviors and training that support the optimization of employee performance particularly in advanced automation environments.

Benefits:

Our biochemical, and bioengineering products have worldwide applications. These products reduce the morbidity and mortality suffered by passengers and crew in aircraft accidents. Our products permit us to specify the role of drugs and alcohol, and other clinical factors, in accident causation.

By clarifying accident liability, our products have saved the FAA well over \$5 million dollars in liability assessments per year since 1991. Some people will also undoubtedly escape death as a result of our FY 1995 products, and others will be spared lengthy recovery from personal injury.

Additionally, our products help negate fears that might restrict use of civilian flight opportunities by the public, thus assisting in the continuous growth of civil aviation. Products from workforce performance optimization will serve to enhance individual and work group efficiency, cost effectiveness, and job performance of FAA employees.



FUNDING SUMMARY (\$000)

FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
4,270	4,333	6,130

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 9a

R,E&D Plan No: 091-110

Program Title: Environment and Energy

091-111

091-112

091-113

Amount: \$5,429,000

Basis for Request:

Under the mandate of the National Environmental Policy Act, Noise Control Act, FAR Parts 36 and 150, this program addresses the environmental consequences of FAA's actions and identify aircraft noise reduction technology and efficient aircraft noise certification procedures. As directed by Sec. 232 of the Clean Air Act and under the authority of FAR Part 34, the aim is to identify efficient and consistent engine emissions certification procedures.

Program Request:

The three general thrusts in noise reduction technology are: (1) identify the feasible airframe and engine technologies; (2) establish the technical and engineering support for the simplification of the noise certification procedures for large helicopters, general aviation, and transport category aircraft; and (3) harmonize the international noise certification procedures. A major activity is the FAA/NASA long-term research program to investigate the state of technology to reduce aircraft noise from airframe and engines as part of the Advanced Subsonic Aircraft Technology Initiative.

The general thrusts in the aircraft emissions arena are: (1) demonstrate the effect of aviation upon global climate change and ozone layers; (2) identify new engine designs which reduce emissions; and (3) develop more efficient engine emissions certification procedures. Major activities include FAA/NASA long-term research programs as part of the High-Speed Research and Advanced Subsonic Technology Initiatives.

The approach to improve and expand upon existing environmental assessment capabilities includes an integrated system of analytical tools, guidelines, and training regimens to apply to the assessment of the environmental impacts of agency actions.

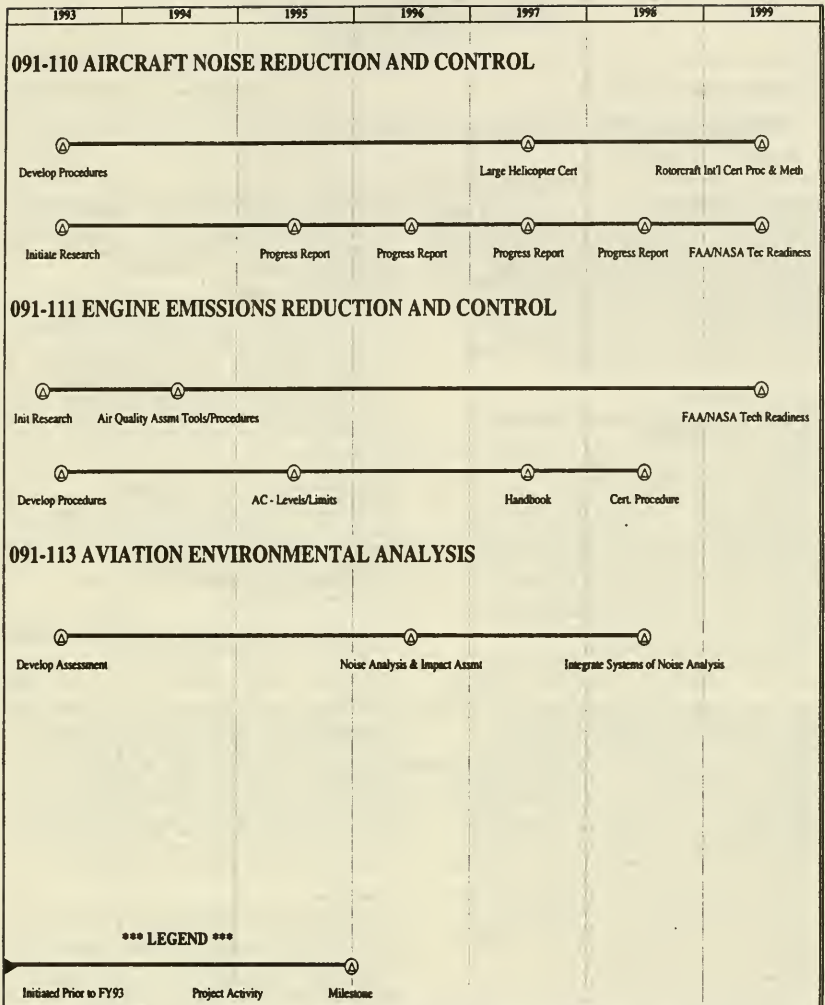
Products in FY 1995 include an enhanced rotorcraft noise assessment capability; improved environmental review and evaluation training curricula; a U.S.

working paper to ICAO CAEP/3 with recommendations on future international noise certification standards for large turbojet aircraft; simplified rotorcraft noise certification procedure; and a new Advisory Circular of aircraft engine emission certification levels.

Benefits:

The return on investment is measured by the agency's direct actions to diminish environmental constraints on airport development and system capacity. Better means of assessing aviation noise impacts will lead to better agency decisions on the aviation system and reduce environmental constraints on airport and system capacity. Simpler aircraft noise and engine emissions certification procedures should substantially reduce costs to manufacturers.

Research into new source noise and emissions abatement technologies will reduce adverse environmental impacts of aviation activity and help maintain the position of the U.S. Aviation industry in the international marketplace.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
4,750	5,385	5,429

**RESEARCH, ENGINEERING AND DEVELOPMENT
(AIRPORT AND AIRWAY TRUST FUND)
FISCAL YEAR 1995**

Budget Item No: 10a

R,E&D Plan No: APPENDIX A

Program Title: Innovative/Cooperative Research

Amount: \$5,036,000

Basis for Request:

This program will: (1) provide the FAA technical community with a portfolio of tools to access forefront research and technology in academic, industrial and government sectors; (2) support the Office of Research and Technology Applications; and (3) satisfy several congressionally mandated research requirements and stimulate new ideas and technologies by the FAA.

Program Request:Aviation Research Grants/Centers of Excellence Program

Grants are used to access research through universities and non-profit institutions. Both a competitive phase for long term interdisciplinary (discretionary) grants, and program funded grants are anticipated. The FAA/NASA Joint University Program will become part of the grants program in FY 1995. A Center of Excellence identified in FY 1994 will be established with technical program funds. Additional Centers of Excellence will continue to be identified, and program funds will continue support for existing Centers.

Technology Transfer Program

This program includes Cooperative Research and Development Agreements (CRDA) and linkage of FAA with other Federal laboratories. (Under the CRDA initiative, over 80 agreements have been implemented with private industry through FY 1994.) The Technical Employee Exchange Program and seminar series will continue, as will training in CRDA's, intellectual property, patents/licensing, and royalty sharing.

Proposals submitted through the Innovative Development and Engineering Applications (IDEA) initiative will continue to be evaluated and implemented as feasible.

Small Business Innovation Research (SBIR) Program

This program provides access to innovative ideas and products in a flexible, responsive manner. Research topics will be chosen in areas of aircraft safety, air traffic control, human factors, and flight service, information and airport technology.

Independent Research and Development (IR&D) Program

This program draws on the strengths and strategic plans of private industry to provide continuous technical innovation.

The FAA will continue influencing the direction of aviation related IR&D. Closer industry/government relationships will be established through Technical Interchange Groups in the framework of the IR&D program. IR&D information will be obtained from industrial sources, which will be matched with relevant ongoing FAA R&D programs.

FAA/NASA Cooperative Programs

Cooperative R&D will continue under memoranda of understanding and project tasks established in human factors, severe weather, cockpit/ATC integration, airworthiness, environmental compatibility, and program support.

University Fellowship Research Program

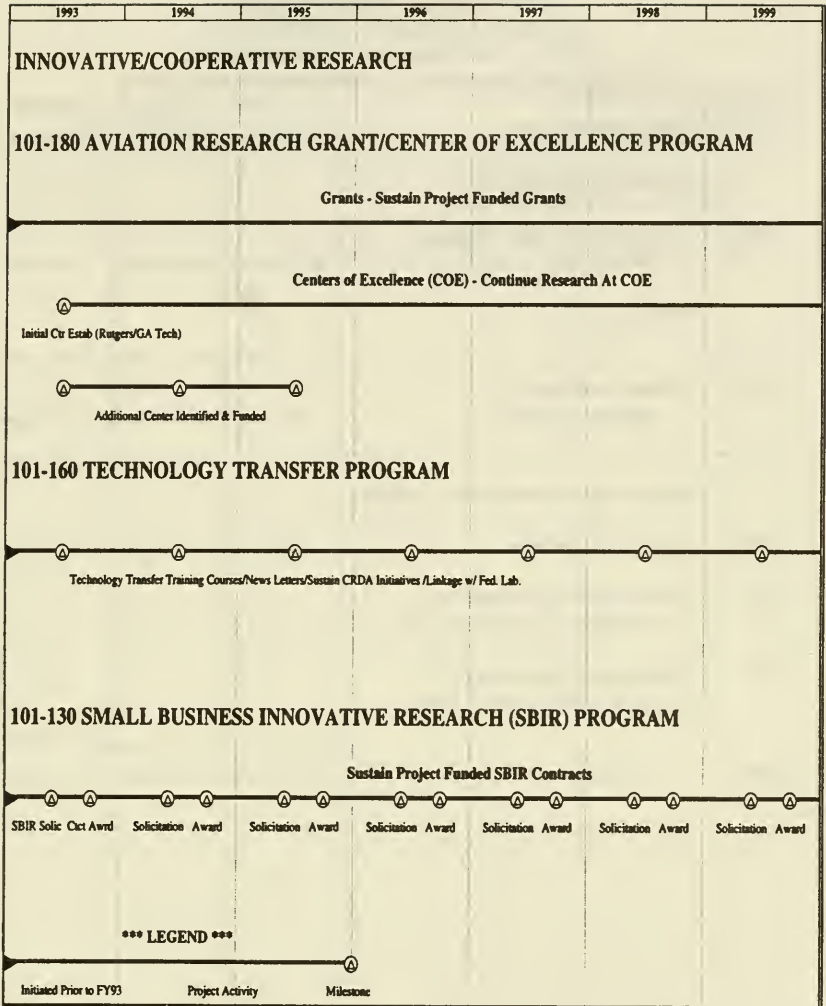
Fellows will conduct research in conjunction with other programs such as in-flight icing, and aircraft tires and aging.

Transportation Research Board (TRB)

TRB is a vital link with the National Academy of Sciences for aviation related issues. Forums, conferences, and workshops address aviation issues, problems, and solutions. The Graduate Research Award Program will grant fellowships to increase competence in future decision makers in aviation.

Benefits:

The innovative/cooperative research program facilitates cooperation between FAA's R,E&D program and the academic and industrial community in joint state of the art research and technology. This program satisfies several congressionally mandated research program requirements, supports national technology initiatives, and leverages FAA R,E&D expenditures by promoting: cooperative R&D agreements, aviation research grants, centers of excellence, small business contracts, access to independent research from industry and government, and technology transfer with other federal laboratories.



FUNDING SUMMARY (\$000)		
FY 1993 APPROPRIATED	FY 1994 APPROPRIATED	FY 1995 REQUESTED
4,177	4,725	5,036

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
TRUST FUND SHARE OF FAA OPERATIONS
Program and Financing (in thousands of dollars)

Identification code:		FY 1993	FY 1994	FY 1995
69-8104-0-7-402		Actual	Estimate	Estimate
Program by activities:				
10.00	Total obligations (object class 92.0)	2,279,321	2,294,500	2,379,200
Financing:				
40.00	Budget Authority (appropriations)	2,279,321	2,294,500	2,379,200
Relation of obligations to outlays:				
71.00	Total obligations	2,279,321	2,294,500	2,379,200
72.10	Receivables in excess of obligations, start of year	-8	0	0
74.10	Receivables in excess of obligations, end of year	0	0	0
90.00	Outlays	2,279,313	2,294,500	2,379,200

TFOPS-1

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

TRUST FUND SHARE OF FAA OPERATIONS

The Airport and Airway Improvement Act of 1982, as amended, and section 9502 of the Internal Revenue Code of 1986, as amended, authorize use of the Airport and Airway Trust Fund as the source of financing a portion of FAA's operating costs. For 1995, it is proposed that \$2,379,200,000 of the Operations appropriation be financed from the trust fund. As established under existing law, this would provide an overall 75 percent cost recovery for FAA programs in total. Financing a portion of the operational costs from the trust fund means that the users of the aviation system will help pay for the salaries and related expenses of FAA's safety employees, who have the daily responsibility of ensuring the safety of the flying public.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
OBJECT CLASS - FY 1995 CONGRESSIONAL BUDGET
(Dollars in Thousands)

Description	TOTAL		AIR TRAFFIC		NAS LOGISTICS	
	FY 1994	FY 1995	FY 1994	FY 1995	FY 1994	FY 1995
FULL-TIME PERMANENT	\$2,541,849	\$2,538,891	\$1,437,464	\$1,446,351	\$54,786	\$52,296
OTHER THAN FULL-TIME PERM.	27,266	21,685	10,432	9,651	1,353	1,029
OTHER PERSONNEL COMPENSATION	271,731	254,847	206,542	206,922	1,534	1,314
SPECIAL PERS. SERV. PAYMENTS	4,975	4,592	1,951	1,987	0	0
TOTAL PERSONNEL COMP.	2,845,821	2,830,015	1,656,399	1,664,911	57,673	54,639
CIVILIAN PERSONNEL BENEFITS	683,048	710,440	362,022	379,782	11,894	11,540
BENEFITS FOR FORMER PERSONNEL	1,381	1,331	181	186	0	0
TRAVEL AND TRANSP. OF PERSONS	93,686	82,895	7,501	8,904	1,351	1,019
TRANSPORTATION OF THINGS	17,323	19,353	251	658	4,095	4,782
RENTAL PAYMENTS TO OTHERS	43,038	25,195	400	410	638	555
COMM., UTILITIES & MISC. CHARGES	394,104	391,260	1,450	1,488	7,576	7,773
PRINTING & REPRODUCTION	9,328	9,582	1,222	1,254	4	4
CONSULTING SERVICES	1,505	1,543	0	0	0	0
OTHER SERVICES	406,734	413,281	103,400	106,092	43,097	44,849
[WORKING CAPITAL FUND]	[24,148]	[33,835]	[0]	[0]	[2,465]	[2,003]
SUPPLIES AND MATERIAL	58,257	79,237	3,000	3,078	47,153	55,757
EQUIPMENT	15,480	16,123	2,475	2,539	2,550	2,816
LANDS & STRUCTURES	341	350	0	0	0	0
INSURANCE CLAIMS & INDEM.	472	485	0	0	0	0
TOTAL, ALL OBJECTS	\$4,580,518	\$4,580,900	\$2,138,301	\$2,167,301	\$175,041	\$183,434

Note: FY 1994 Estimate excludes \$916,000 No-Year.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
OBJECT CLASS - FY 1995 CONGRESSIONAL BUDGET
(Dollars in Thousands)

EX-2

Description	SYSTEMS MAINTENANCE		LEASED TELECOMMUNICATIONS		AVIATION REGULATION AND CERTIFICATION	
	FY 1994	FY 1995	FY 1994	FY 1995	FY 1994	FY 1995
FULL-TIME PERMANENT	\$482,494	\$474,595	\$0	\$0	\$241,822	\$250,325
OTHER THAN FULL-TIME PERM.	5,168	3,784	0	0	1,843	1,429
OTHER PERSONNEL COMPENSATION	48,677	42,112	0	0	4,429	3,097
SPECIAL PERS. SERV. PAYMENTS	672	661	0	0	205	205
TOTAL PERSONNEL COMP.	535,011	521,152	0	0	248,299	255,056
CIVILIAN PERSONNEL BENEFITS	106,630	109,517	0	0	57,062	61,874
BENEFITS FOR FORMER PERSONNEL	0	0	0	0	0	0
TRAVEL AND TRANSP. OF PERSONS	18,114	15,731	0	0	12,025	11,833
TRANSPORTATION OF THINGS	10,487	10,872	0	0	989	1,436
RENTAL PAYMENTS TO OTHERS	24,751	6,178	0	0	11,982	12,528
COMM., UTILITIES & MISC. CHARGES	61,720	64,489	301,108	294,148	1,110	1,149
PRINTING & REPRODUCTION	520	534	0	0	802	621
CONSULTING SERVICES	0	0	0	0	0	0
OTHER SERVICES	90,485	111,255	20,731	20,061	13,306	13,368
[WORKING CAPITAL FUND]	[0]	[0]	[3,952]	[4,266]	[0]	[0]
SUPPLIES AND MATERIAL	6,192	6,947	287	305	1,167	1,232
EQUIPMENT	1,245	1,277	2,393	2,455	469	472
LANDS & STRUCTURES	47	48	0	0	40	41
INSURANCE CLAIMS & INDEMN.	100	103	0	0	151	155
TOTAL, ALL OBJECTS	\$855,302	\$848,113	\$324,529	\$316,987	\$347,392	\$369,965

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
OBJECT CLASS - FY 1995 CONGRESSIONAL BUDGET
(Dollars In Thousands)

Description	AVIATION STANDARDS		CIVIL AVIATION SECURITY		NAS DESIGN AND MANAGEMENT	
	FY 1994	FY 1995	FY 1994	FY 1995	FY 1994	FY 1995
FULL-TIME PERMANENT	\$57,153	\$55,510	\$39,579	\$39,450	\$31,328	\$30,094
OTHER THAN FULL-TIME PERM.	622	722	476	287	341	184
OTHER PERSONNEL COMPENSATION	2,903	2,580	2,590	2,464	812	657
SPECIAL PERS. SERV. PAYMENTS	(295)	(295)	43	43	135	130
TOTAL PERSONNEL COMP.	60,383	58,517	42,988	42,244	32,614	31,065
CIVILIAN PERSONNEL BENEFITS	13,161	13,555	10,885	11,807	5,483	5,840
BENEFITS FOR FORMER PERSONNEL	0	0	0	0	0	0
TRAVEL AND TRANSP. OF PERSONS	3,710	3,130	4,576	3,754	652	441
TRANSPORTATION OF THINGS	475	527	340	299	349	358
RENTAL PAYMENTS TO OTHERS	1,166	1,216	1,259	1,302	0	0
COMM., UTILITIES & MISC. CHARGES	1,502	1,557	914	938	5,927	5,581
PRINTING & REPRODUCTION	139	161	67	69	313	321
CONSULTING SERVICES	0	0	0	0	389	398
OTHER SERVICES	27,730	24,490	4,302	4,239	10,099	9,918
[WORKING CAPITAL FUND]	[95]	[3,000]	[1,816]	[1,871]	[0]	[0]
SUPPLIES AND MATERIAL	5,969	7,315	350	359	550	554
EQUIPMENT	1,183	1,453	55	67	252	259
LANDS & STRUCTURES	0	0	0	0	0	0
INSURANCE CLAIMS & INDEMN.	0	0	0	0	0	0
TOTAL, ALL OBJECTS	\$115,418	\$111,942	\$65,856	\$65,088	\$55,828	\$55,745

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION
OBJECT CLASS - FY 1995 CONGRESSIONAL BUDGET
(Dollars in Thousands)

EX-4

Description	AIRPORTS		DIRECTION, STAFF & SUPPORTING SERVICES		HUMAN RESOURCE MANAGEMENT	
	FY 1994	FY 1995	FY 1994	FY 1995	FY 1994	FY 1995
FULL-TIME PERMANENT OTHER THAN FULL-TIME PERM.	\$27,978	\$29,300	\$85,835	\$83,117	\$72,882	\$88,300
OTHER PERSONNEL COMPENSATION	703	547	2,865	1,863	2,591	1,604
SPECIAL PERS. SERV. PAYMENTS	418	339	2,389	2,107	2,594	2,198
	43	43	1,091	1,046	0	0
TOTAL PERSONNEL COMP.	29,138	30,229	72,150	88,133	78,147	72,099
CIVILIAN PERSONNEL BENEFITS	5,549	8,096	14,233	14,272	90,714	90,691
BENEFITS FOR FORMER PERSONNEL	0	0	0	0	1,200	1,146
TRAVEL AND TRANSP. OF PERSONS	374	303	3,662	2,278	41,029	36,876
TRANSPORTATION OF THINGS	41	127	138	140	147	151
RENTAL PAYMENTS TO OTHERS	263	260	10	10	2,669	2,636
COMM., UTILITIES & MISC. CHARGES	15	15	12,600	12,928	173	177
PRINTING & REPRODUCTION	114	117	5,220	5,386	241	247
CONSULTING SERVICES	0	0	1,118	1,145	0	0
OTHER SERVICES	3,314	3,268	32,655	31,655	49,847	36,337
[WORKING CAPITAL FUND]	[0]	[0]	[14,456]	[16,801]	[1,362]	[5,894]
SUPPLIES AND MATERIAL	56	57	1,779	1,825	1,464	1,502
EQUIPMENT	4	5	2,777	2,849	1,908	1,956
LANDS & STRUCTURES	0	0	284	281	0	0
INSURANCE CLAIMS & INDEMN.	0	0	221	227	0	0
TOTAL, ALL OBJECTS	\$38,868	\$40,477	\$146,713	\$141,077	\$267,239	\$243,819

DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 OPERATIONS APPROPRIATION
 OBJECT CLASS - FY 1995 CONGRESSIONAL BUDGET
 (Dollars in Thousands)

Description	HEADQUARTERS ADMINISTRATION	
	FY 1994	FY 1995
FULL-TIME PERMANENT	\$30,263	\$25,663
OTHER THAN FULL-TIME PERM.	772	666
OTHER PERSONNEL COMPENSATION	876	1,060
SPECIAL PERS. SERV. PAYMENTS	1,120	772
TOTAL PERSONNEL COMP.	33,021	31,970
CIVILIAN PERSONNEL BENEFITS	5,416	5,456
BENEFITS FOR FORMER PERSONNEL	0	0
TRAVEL AND TRANSP. OF PERSONS	662	429
TRANSPORTATION OF THINGS	13	13
RENTAL PAYMENTS TO OTHERS	0	0
COMM., UTILITIES & MISC. CHARGES	9	9
PRINTING & REPRODUCTION	686	698
CONSULTING SERVICES	0	0
OTHER SERVICES	7,966	7,929
[WORKING CAPITAL FUND]	[0]	[0]
SUPPLIES AND MATERIAL	260	266
EQUIPMENT	169	163
LANDS & STRUCTURES	0	0
INSURANCE CLAIMS & INDEM.	0	0
TOTAL, ALL OBJECTS	\$48,233	\$46,952

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FY 1995 CONGRESSIONAL BUDGET
PERMANENT CHANGE OF STATION

APPROPRIATION: OPERATIONS:	FY 1993 ACTUAL NO OF MOVES	AMOUNT	FY 1994 ESTIMATE NO OF MOVES	AMOUNT	FY 1995 REQUEST NO OF MOVES	AMOUNT
Operation of Traffic Control System	552	\$21,671	68	\$3,005	170	\$8,005
NAS Logistics Support	1	41	1	28	1	28
Maintenance of Traffic Control System	316	10,876	120	4,257	163	6,034
Leased Telecommunications Services	0	0	0	0	0	0
Aviation Regulation and Certification:						
Flight Standards	38	1,918	20	1,000	80	4,052
Aircraft Certification	16	696	10	330	10	339
PD&E	0	0	0	0	0	0
Total, AVR	58	2,614	30	1,330	90	4,391
Aviation Standards:						
Flight Program and Mgmt. of Aircraft	27	976	20	748	43	1,831
Records Servicing and Analysis	0	0	0	0	0	0
Medical	11	269	2	106	0	0
PD&E	0	0	1	75	1	75
Total, AVS	38	1,285	23	929	44	1,708
Civil Aviation Security	50	1,734	26	900	26	900
NAS Design and Management	1	47	0	0	0	0
Administration of Airports	4	286	1	30	7	342
Direction, Staff & Supporting Services	11	835	3	226	4	350
Human Resource Management	25	952	19	781	17	748
Headquarters Administration	5	339	2	134	2	137
TOTAL, OPERATIONS	1,059	40,860	293	11,802	524	22,841
F&E	549	20,635	470	16,190	688	23,200
R&D	6	375	23	1,150	23	1,150
TOTAL ALL APPROPS.	1,618	\$61,870	788	\$30,942	1,235	\$46,891

**FEDERAL AVIATION ADMINISTRATION
Technical Center**

	<u>FY 1994 ENACTED</u>		<u>FY 1995 REQUESTED</u>	
	<u>Positions</u>	<u>Amount</u>	<u>Positions</u>	<u>Amount</u>
<u>OPERATIONS: (DIRECT CONTROLLED)</u>				
NAS Design and Management	166	28,072,100	158	26,188,900
Direction, Staff and Support	37	2,984,000	37	2,819,100
Human Resource Management	24	1,703,000	23	1,840,000
SUBTOTAL - DIRECT CONTROLLED	228	30,759,100	218	30,828,000
<u>OPERATIONS: (STRAIGHTLINED/TENANT)</u>				
Systems Maintenance				
Operational Support Service	450	35,692,800	444	48,180,477
Leased Telecommunications	0	691,100	0	808,500
SUBTOTAL	450	36,383,700	444	48,988,977
Medical	1	82,000	1	80,000
Chief Counsel	7	563,800	7	528,400
Civil Aviation Security	5	241,000	5	240,720
SUBTOTAL - STRAIGHTLINED/TENANT	483	37,050,500	457	47,818,097
OPERATIONS - TOTAL	689	67,809,600	676	78,242,097
<u>FACILITIES AND EQUIPMENT (F&E):</u>				
Technical Center (ACT)	345	45,881,800	346	45,902,908
Operational Support Service	27	2,071,100	27	2,105,000
Office of Independent Operational Test and Evaluation (OIT&E) Oversight	16	1,137,400	16	1,166,988
FACILITIES AND EQUIPMENT - TOTAL	388	49,090,100	388	49,163,894
<u>RESEARCH, ENGINEERING AND DEVELOPMENT (R&D):</u>				
Conduct of test and evaluation	405	109,876,000	405	123,897,000
TOTAL PROGRAM, TECHNICAL CENTER	1,482	226,774,700	1,468	261,102,991
<u>Distribution by Appropriation</u>				
Operations	689	67,809,600	676	78,242,097
Facilities and Equipment	388	49,090,100	388	49,163,894
Research, Engineering and Development	405	109,876,000	405	123,897,000
Total	1,482	226,774,700	1,468	261,102,991

NOTES:

OPERATIONS PROGRAMS ARE DIVIDED BETWEEN DIRECT CONTROL (ASSIGNED TO ACT) AND STRAIGHTLINED/TENANT.

F&E REFLECTS SEPARATE LINES FOR POSITIONS AND RELATED DOLLARS (EXCLUDES NATIONAL TRAVEL) FOR ACT AND TENANT.

F&E INCLUDES RESEARCH, TEST AND EVALUATION FUNCTIONS WHERE ACT HAS PROGRAM RESPONSIBILITY.

R&D REFLECTS IN-HOUSE DOLLARS ASSIGNED TO ACT AND X-CONTRACT DOLLARS SPONSORED BY ACT.

FEDERAL AVIATION ADMINISTRATION
Mike Monroney Aeronautical Center

	FY 1994 ENACTED		FY 1995 REQUESTED	
	Positions	Amount	Positions	Amount
Centralized Training (Operations)	70	3,681,200	68	3,546,000
Subtotal	70	3,681,200	68	3,546,000
FAA Logistics Center:				
Material, procurement, project management and shops				
(Operations-NAS Logistics)	639	103,056,600	618	112,824
(Facilities and Equipment)	24	21,172,068	24	22,560,000
Subtotal	663	124,228,668	642	22,672,824
Civil Aeromedical Opers & Research:				
Operations 1/	121	6,560,000	121	7,000,000
Direct research at Civil Aeromedical Institute Laboratories (R,E&D) 1/	93	9,352,000	93	10,461,000
Subtotal	214	15,912,000	214	17,461,000
Aviation Regulation & Certification				
Certification 1/	18	1,240,100	18	1,229,337
Flight Standards 1/	83	8,161,600	83	8,083,243
Subtotal	101	9,401,700	101	9,312,580
Aviation Standards:				
Records servicing and analysis (OPS) 1/	192	6,967,000	188	7,132,000
Operations, maintenance, modification and overhaul of aircraft 1/				
(Operations)	712	66,417,000	695	66,046,000
(Facilities and Equipment)	29	39,710,000	29	96,053,000
Subtotal	933	113,094,000	912	169,231,000
Aviation Security:				
(Operations):	30	1,312,000	30	1,351,000
(Facilities and Equipment)	2	1,764,339	2	1,880,000
Subtotal	32	3,076,339	32	3,231,000
Aeronautical Center (Operations):				
NAS Logistics Support	262	28,141,700	256	27,680,000
Leased Telecommunications	0	1,751,500	0	1,797,000
Direction, Staff and Support	271	20,649,000	271	20,062,500
General Counsel	10	693,800	10	666,100
Air Traffic	8	722,000	8	734,000
Human Resource Management Division	684	108,335,800	666	107,358,000
Subtotal	1,235	160,293,800	1,211	158,297,600
Systems Maintenance:				
Airway engineering support (Operations)	74	8,881,200	73	9,270,771
(Facilities and Equipment)	33	29,111,593	33	31,020,000
Subtotal	107	37,992,793	106	40,290,771
Total Program, Aeronautical Center	3,355	467,680,500	3,286	424,042,775
Distribution by Appropriation:				
Operations	3,174	366,570,500	3,105	262,068,775
Facilities and Equipment	88	91,758,000	88	151,513,000
Research, Engineering and Development	93	9,352,000	93	10,461,000
Total	3,355	467,680,500	3,286	424,042,775

1/ Positions physically located at center, but staffing and resources are part of Headquarters allowance, and organization.

FEDERAL AVIATION ADMINISTRATION
Mike Monroney Aeronautical Center

Centralized Training

Included under this heading:

FAA Academy - The focal point for training the agency's technical work force. Resident and non-resident training are provided in air traffic control, facility maintenance, flight, and flight related technical subjects. Field training efforts are supported through computer based instruction, correspondence study and centralized development of on-the-job training materials.

FAA Logistics Center

Included under this heading are staffing and funding requirements for warehousing, distribution, and material control functions necessary to furnish supplies, spare parts and components for the maintenance of day-to-day air navigation and air traffic control facilities and the operation of agency aircraft (other than aircraft utilized for research and development). The work also involves packaging and shipping of facility components to sites where new facilities are being installed or relocated. Shop operations are conducted for the repair and overhaul of navigational aids, air traffic control and communication equipment; as well as providing maintenance support of technical equipment used at the FAA Academy training programs.

Aviation Regulation and Certification

Functions performed at the Office of Aviation System Standards (formerly the Aviation National Field Office) include operating and managing national aviation safety data systems; developing airmen examination and examining standards; and developing airworthiness standards and advisory material. In addition, the Office of Aviation System Standards publishes and maintains aircraft certification technical publications.

Aviation Standards

Functions performed at the Aviation System Standards Office include the issuance of airmen certificates, aircraft registration, and the recording of conveyance affecting title to U.S. aircraft components. Also included are flight safety activities which are designed to ensure the adequacy and accuracy of air navigation facilities and to provide for the development and standardization of flight procedures; FAA aircraft fleet maintenance and engineering; and regulatory and standards development.

Aeronautical Center Operations

This program provides local human resource management, staff and supporting services to all of the operating programs located at the Aeronautical Center. The activities included are Direction and Management, Civil Rights, Legal, Logistics Support, Budget, Public Affairs, Personnel Management, Labor Relations, Management Systems, Accounting, Communications Control and International Liaison, Administration Services, Data Systems, Printing, Building and Grounds Maintenance, and Penalty Mail. This program also includes common use goods and services such as furniture, supplies, GSA store purchases, and equipment for various organizations located at the Center.

System Maintenance

The National Airway Systems Engineering Division is one of the principal elements under the Operational Support Service. Primary functional responsibilities are (1) providing direct hardware and software engineering support to field facility maintenance elements, (2) encompasses in-service improvements and modification development, evaluation, implementation, direct engineering support to field facilities, and maintenance directives publications and issuance for NAS systems, i.e., Environmental, Weather, radar, Beacon, Nav aids, and Communications, and (3) providing support to organizations involved in the development/implementation of new NAS systems, developing engineering designs and preparing facility modifications. Location of this function at the Aeronautical Center has an added advantage of providing engineers involved with direct access to the equipment with which manuals and modifications are concerned.

Civil Aeromedical Institute

The Civil Aeromedical Institute (CAMI) is devoted to aeromedical operations and research activities. Operational activities include (1) review, documentation, information retrieval, and adjudication of airmen medical certification, (2) operation of the aviation medical examiner system, (3) provision of occupational health and clinical services for all agency employees and students at the Aeronautical Center, (4) industrial hygiene assessments and review of FAA activities with respect to the occupational health portion of the Occupational Safety and Health Act, (5) conduct of the airmen medical education program, (6) validation of medical qualification decisions, and (7) direction of aeromedical human factors and medical research programs.

The research programs are responsive to the National plan for Aviation Human Factors and are comprised of the following environments; Flight Deck, Air Traffic Control, Flight Deck/ATC Integration, Aircraft Maintenance, Airway Facilities and Aeromedical Research. The primary objectives of these research activities are to: (1) increase the effectiveness of pilot and aircrew; (2) define and limit aircrew and passenger risks in normal and emergency civilian flight conditions; (3) determine the involvement of medical factors in accident; (4) develop improved state-of-the-art knowledge and techniques in support of medical qualifications; (5) develop and evaluate improved selection and training

systems for ATCS and other aviation personnel; (6) evaluate the impact of advanced automation systems on ATCS and pilot performance; (7) facilitate information sensing, processing and control in pilot/ATCS communications; and (8) quantify individual and team performance to reduce human errors and enhance safety and productivity in the operation and maintenance of the National Airspace Systems.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
ENERGY CONSERVATION RESOURCES
FY 1995 BUDGET

RESOURCES 1/
FY 1995

ACCOUNT/PAGE #	INITIATIVE / ACTIVITY	ESTIMATED	
		BA DOLLARS (000)	ENERGY SAVINGS FTE (MILLION BTU/YEAR)
Facilities & Equipment	1. Replace 32 chillers	6,900	2,955
Facilities & Equipment	2. Replace fluorescent light fixtures	37	2
Facilities & Equipment	3. Provide environmental upgrades to the Technical Building	700	4,461
Facilities & Equipment	4. Provide an energy management system (Tech Center)	500	3,345
Facilities & Equipment	5. Implement energy improvements in the Tech Center Central Utilities Plant	170	803
Operations	6. Install ice thermal storage system at the Aeronautical Ctr (AC) AOS-200 building to reduce on peak load	160	1/
Operations	7. Install motion detectors to control lights in janitor closets, restrooms and mechanical rooms (AC)	30	750
Operations	8. Install variable speed drives on cooling tower fan motors (AC)	75	1,850
Operations	9. Install a chilled water thermal storage system at the Log Ctr to reduce on-peak load (AC)	120	1/
Operations	10. Install plate & frame heat exchangers to ambient cooling	65	800
Operations	11. Install variable speed pump control on chilled and heating water circ sys	175	2,000
		8,932	0
			16,966

1/ Demand-side mgmt projects focus on leveling the usage profile to avoid electrical demand charges. Total energy consumption remains constant, but purchase costs are substantially reduced.

DEPARTMENT OF TRANSPORTATION
 FEDERAL AVIATION ADMINISTRATION
 ELECTRIC AND OTHER ENERGY COSTS
 INCURRED AT FAA FACILITIES
 FY 1995 BUDGET

\$(000)

ACCOUNT/PAGE NUMBER	TYPE OF UTILITY	FY 1993 ACTUAL	FY 1994 ESTIMATE	FY 1995 ESTIMATE
Operations	Electric	9,800	10,100	10,500
	Fuel Oil & Diesel	27	27	27
	Natural Gas	1,270	1,329	1,417
	LPG/Propane/Gasoline	153	155	155
	Total	11,250	11,611	12,099

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
General Provisions

SEC. 301. During the current fiscal year applicable appropriations to the Department of Transportation shall be available for maintenance and operation of aircraft; hire of passenger motor vehicles and aircraft; purchase of liability insurance for motor vehicles operating in foreign countries on official department business; and uniforms, or allowances therefor, as authorized by law (5 U.S.C. 5901-5902).

SEC. 303. Funds appropriated under this Act for expenditures by Federal Aviation Administration shall be available (1) except as otherwise authorized by the Act of September 30, 1950 (20 U.S.C. 236-244), for expenses of primary and secondary schooling for dependents of Federal Aviation Administration personnel stationed outside the continental United States at costs for any given area not in excess of those of the Department of Defense for the same area, when it is determined by the Secretary that the schools, if any, available in the locality are unable to provide adequately for the education of such dependents, and (2) for transportation of said dependents between schools serving the area that they attend and their places of residence when the Secretary, under such regulations as may be prescribed, determines that such schools are not accessible by public means of transportation on a regular basis.

SEC. 306. None of the funds in this Act shall be used for the planning or execution of any program to pay the expenses of, or otherwise compensate, non-Federal parties intervening in regulatory or adjudicatory proceedings funded in this Act.

SEC. 307. None of the funds appropriated in this Act shall remain available for obligation beyond the current fiscal year, nor may any be transferred to other appropriations, unless so provided herein.

SEC. 309. The expenditure of any appropriation under this Act for any consulting service through procurement contract pursuant to section 3109 of title 5, United States Code, shall be limited to those contracts where such expenditures are a matter of public record and available for public inspection, except where otherwise provided under existing law, or under existing Executive order issued pursuant to existing law.

SEC. [317] 315. Such sums as may be necessary for fiscal year [1994] 1995 pay raises for programs funded in this Act shall be absorbed within the levels appropriated in this Act.

SEC. [319] 316. Notwithstanding any other provision of law, airports may transfer, without consideration, to the Federal Aviation Administration instrument landing systems (along with associated approach lighting equipment and runway visual range equipment) which conform to Federal Aviation Administration design and performance specifications, the purchase of which was assisted by a Federal airport aid program, airport development aid program or airport improvement program grant. The Federal Aviation Administration

shall accept such equipment, which shall thereafter be operated and maintained by the Federal Aviation Administration in accordance with agency criteria.

SEC. [321] 317. None of the funds in this Act shall be available to award a multiyear contract for production end items that (1) includes economic order quantity or long lead time material procurement in excess of \$10,000,000 in any one year of the contract or (2) includes a cancellation charge greater than \$10,000,000 which at the time of obligation has not been appropriated to the limits of the government's liability or (3) includes a requirement that permits performance under the contract during the second and subsequent years of the contract without conditioning such performance upon the appropriation of funds: *Provided*, That this limitation does not apply to a contract in which the Federal Government incurs no financial liability from not buying additional systems, subsystems, or components beyond the basic contract requirements.

SEC. [333] 320. None of the funds provided by this Act shall be made available for any airport development project, or projects, proposed in any grant application submitted in accordance with title V of Public Law 97-248 (96 Stat. 671: 49 U.S.C. App. 2201 et seq.) to any public agency, public authority, or public airport that imposes a fee for any passenger enplaning at the airport in any instance where the passenger did not pay for the air transportation which resulted in such enplanement, including any case in which the passenger obtained the ticket for the air transportation with a frequent flyer award coupon.

GLOSSARY OF ABBREVIATIONS APPEARING IN FAA JUSTIFICATION

AAS	Advanced Automation System
AAS	Automated Airport Service
ACARS	Air Carrier Address and Reporting System
ACCC	Area Control Computer Complex
ACD	Automatic Call Distributor
ACF	Area Control Facility
ACIP	Airport Capital Improvement Plan
ACSEP	Aircraft Certification Survey Evaluation Program
ACT	Federal Aviation Administration Technical Center
ADAP	Airport Development Aid Program
ADAS	AWOS Data Acquisition System
ADCN	Agencywide Administrative Data Communications Network
ADDM	Automated Documentation Development and Maintenance
ADI	Attitude Direction Indicator
ADL	Aeronautical Data Link
ADP	Automated Data Processing
ADS	Automatic Dependent Surveillance
ADTN	Administrative Data Telecommunications Network
AERA	Automated En Route Air Traffic Control
AF	Airway Facilities
AFB	Air Force Base
AFIS	Automated Flight Inspections System
AFSS	Automated Flight Service Station
AIM	Aeronautical Information Management Program
AIP	Airport Improvement Program
ALS	Approach Light System
ALSIM	Airport Landside Simulation Model
ALSIP	Approach Lighting System Improvement Program
AMASS	Airport Movement Areas Safety System
AME	Aviation Medical Examiner
AMIS	Aircraft Management Information System
AMMP	Agency Management Modernization Plan
AMS	Aeronautical Mobil Service
ANICS	Alaskan NAS Interfacility Communications System
AOS	Operational Support Service
ARE	Aircraft Related Equipment
ARF	Aviation Route Forecast
ARNICA	Aeronautical Radio, Incorporated
ARRA	Aircraft Registration Records Administration System
ARTCC	Air Route Traffic Control Center
ARTS	Automatic Radar Terminal System
ASAS	Aviation Safety Analysis System

ASDE	Airport Surface Detection Equipment
ASDO	Aviation Standards District Office
ASOS	Automated Surface Observing System
ASER	Air Route Surveillance Radar
ASI	Aviation Safety Inspector
ASTA	Airport Surface Traffic Automation
ASR	Airport Surveillance Radar
ASRS	Aviation Safety Reporting System
ATAS	Automated Traffic Advisory Service
ATC	Air Traffic Control
ATCAC	Air Traffic Control Advisory Committee
ATCCC	Air Traffic Control Command Center
ATCRBS	Air Traffic Control Radar Beacon System
ATCS	Air Traffic Control Specialist
ATCT	Airport Traffic Control Tower
ATIS	Automated Terminal Information System
ATMS	Advanced Traffic Management System
ATN	Aeronautical Telecommunications
AT&T	American Telephone and Telegraph
AUTODIN	Automatic Digital Network
AVS	Office of Aviation Standards
AWIPS	Advanced Weather Information Processing Systems
AWIS	Airport Weather Information System
AWOS	Automated Weather Observing System
AWPG	Aviation Weather Products Generator
BANS	Bright Radar Indicator Tower Equipment (BRITE) Alpha-Numeric Subsystem
BIS	Budget Information System
BPS	Bits Per Second
BRITE	Bright Radar Indicator Tower Equipment
BUEC	Backup Emergency Communications
CAAA	Clean Air Act Amendment
CAD	Computer Aided Design
CADM	Computer-Aided Decisionmaking
CDS	Computer Dispatch System
CAEG	Computer Aided Engineering Graphics
CAIS	Comprehensive Airmen Information System
CAMI	Civil Aeromedical Institute
CARF	Central Altitude Reservation Function
CAT	Category
CBR	Commercially Based Rent
CBI	Computer Based Instruction
CCD	Configuration Control Decision
CCMS	Central Control Monitoring System
CCS	Controller Chart Supplement

CD	Common Digitizer
CDR	Critical Design Review
CDS	Computerized Dispatch System
CDTI	Cockpit Display of Traffic Information
CERAP	Combined Center Radar Approach Control
CERAP	Consolidate San Juan Facilities Center Radar Approach
CFCF	Central Flow Control Function
CFR	Crash-Fire Rescue
CIP	Capital Investment Plan
CIS	Computer Information Systems
CONUS	Continental, Contiguous, or Conterminous United States
CORN	Computer Resource Nucleus
COS	Change of Station
COTS	Commercial off-the-shelf
CPE	Customer Premise Equipment
CPG	Central Programming Group
CPMIS	Consolidated Personnel Management Information System
CRDA	Converging Runway Display Aid
CSRS	Civil Service Retirement System
CT	Centralized Training
CUP	Central Utilities Plant
CWF	Controller Work Force
CWP	Central Weather Processor
CWSU	Central Weather Service Unit
DAFIS	Departmental Accounting and Financial Information System
DAR	Designated Airworthiness Representative
DARC	Direct Access Radar Channel
DASD	Digital Access Storage Devices
DASI	Digital Altimeter Setting Devices
DBRITE	Digital Bright Radar Indicator Tower Equipment
DECCO	Defense Commercial Communications Office
DEMARCS	Demarcation
DER	Designated Engineering Representative
DF	Direction Finder
DLP	Data Link Processor
DME	Distance Measuring Equipment
DMN	Data Multiplexing Network
DMSA	Designated Major Systems Acquisition
DOD	Department of Defense
DOL	Department of Labor
DOS	Department of State
DOT	Department of Transportation
DOTS	Dynamic Ocean Track System
DS&SS	Direction, Staff and Supporting Services
DTDM	Deterministic Time Division Multiplexing

DUATS	Direct User Access Terminal Service
DVOR	Doppler Very High Frequency Omnidirectional Range
EAP	Employee Assistance Program
EARTS	En Route Automated Radar Tracking System
ECT	Evaluation Currency and Transportation
EDMS	Electronic Data Management System
EDS	Explosive Detection System
EFAS	En Route Flight Advisory Service
EFIS	Electronic Flight Instrumentation Systems
EFR	Electronic Flight Rules
EIP	Employee Involvement Program
EIS	Enforcement Information System
EOQ	Economic Order Quantity
EPA	Environmental Protection Agency
EPATS	Electronic Planning and Tracking System
ERMS	Environmental Remote Monitor System
ETMS	Enhanced Traffic Management System
E&R	Exchange and Repair
FAA	Federal Aviation Administration
FAAP	Federal Aid Airport Program
FAALC	Federal Aviation Administration Logistics Center
FAATC	Federal Aviation Administration Technical Center
FAATSAT	FAA Telecommunications Satellite
FAM	Federal Air Marshall
FAR	Federal Air Regulation
F&E	Facilities and Equipment
FCC	Federal Communications Commission
FDD	Flight Data Display
FDIO	Flight Data Input/Output
FDR	Flight Data Recorder
FDS	Flight Director Systems
FEDSTRIP	Federal Standards Requisition and Issue Procedures
FEMA	Federal Emergency Management Agency
FERS	Federal Employees' Retirement System
FIAO	Flight Inspection Area Office
FL	Flight Level
FMS	Flight Management System
FOIA	Freedom of Information Act
FPL	Full Performance Level
FPS	Military Primary Radar
FRP	Federal Radio Navigation Plan
FSAS	Flight Service Automation System
FSDO	Flight Standards District Office
FSDPS	Flight Service Data Processing System
FSS	Flight Service Station

FSTN	Federal Secure Telephone Network
FTE	Flight Technical Error
FTE	Full-Time Equivalent
FTP	Full-Time Permanent
FTS	Federal Telecommunication System
G/A	General Aviation
GNAS	General National Airspace System
GPS	Global Positioning System
GREAT	Graduate-Level Research and Education in Aviation Technology
GSA	General Services Administration
HAT	Height Above Touchdown
HCVR	High Capacity Voice Recorders
HEMP	High Altitude Electromagnetic Pulse
HF	High Frequency
HI-EFAS	Hi Fi Altitude En Route Flight Advisory Service
HR	Human Relations
HRM	Human Resources Management
HUD	Head-Up Display
HVAC	Heating, Ventilating and Air Conditioning
IAO	International Aircraft Operator
IAPA	Instrument Approach Procedures Automation
ICAO	International Civil Aviation Organization
ICSS	Integrated Communications Switching System
IFDT	Interfacility Data Transfer
IFIO	International Flight Inspection Office
IFM	Integrated Flow Management
IFO	International Field Office
IFR	Instrument Flight Rules
IFSS	International Flight Service Station
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
INS	Inertial Navigation Systems
IOT&E	Independent Operational Test and Evaluation
IR&D	Independent Research and Development
IRMP	Information Resources Management Plan
ISP	Interim Support Plan
ISU	Inertial Sensor Unit
ISSS	Initial Sector Suite Subsystem
ITU	International Telecommunication Union
IVRS	Interim Voice Response System
JAWS	Joint Airport Weather Studies
JSS	Joint Surveillance System
LCN	Local Communications Network
LINCS	Leased Interfacility NAS Communications System

EX-20

LIP	Limited Installation Program
LIS	Logistics and Inventory System
LOI	Letters of Intent
L,P&HR	Labor, Personnel and Human Relations
LLWAS	Low Level Wind Shear Alert System
LOFF	LORANC Flight Following
LORAN C	Long Range Navigation System - [Pulsed, Hyperbolic) Operating in 90 - 110 kHz (kilohertz) Frequency Band]
LRR	Long Range Radar
LRU	Line Replaceable Unit
LSA	Logistics Support Analysis
MAFIS	Multiple En Route Automatic Flight Inspection System
MALS	Medium-Intensity Approach Lighting System
MALSR	Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights
MAPO	Maintenance Automation Program Office
MAR	Minimally Attended Radar
MAX-E	Modular X-ray System
MCC	Maintenance Control Center
MCI	Mode C Intruder
MDA	Minimum Descent Altitude
MDT	Maintenance Data Terminal
MEFIS	Multisensor Enroute Flight Inspection System
MILSTRIP	Military Standard Requisition and Issue Procedures
MLS	Microwave Landing System
MMAC	Mike Monroney Aeronautical Center
MMS	Maintenance Management System
MNPS	Minimum Navigation Performance System
MODE S	Discrete Addressable Secondary Radar System with Data Link
MODE-S	Mode Select Air Traffic Control Radar Beacon System
MOPS	Minimum Operational Performance Standard
MPS	Maintenance Processor Subsystem
MSL	Mean Sea Level
MTD	Moving Target Detection
MWP	Meteorological Weather Processor
NAD	North American Datum
NADIN	National Airspace Data Interchange Network
NAIS	National Airspace System Integrated Logistic Support
NAMFAC	National Airspace Management Facility
NARE	National Airspace Review Enhancement
NARACS	National Radio Communications System
NAS	National Airspace System
NASA	National Aeronautics and Space Administration

NASAO	National Association of State Aviation Officials
NASIP	National Aviation Safety Inspection Program
NASP	National Airspace System Plan
NASPAC	National Airspace System Performance Analysis Capability
NATCOM	National Communications Center, Kansas City, Missouri
NAVAID	Navigational Aid
NAVSTAR	Navigation System Using Timing and Ranging
NBS	National Bureau of Standards
NCU	Navigational Computer Unit
NDB	Non Directional Beacon
NDI	Nondestructive Inspection
NEPA	National Environmental Policy Act
NEXRAD	Next Generation Weather Radar
NFDC	National Flight Data Center
NFIC	National Facilities Information Systems
NGS	National Geodetic Survey
NIH	National Institutes of Health
NMCC	Network Management and Control Center
NMR	Nuclear Magnetic Resonance
NOS	National Ocean Service
NOTAM	Notice to Airmen
NPIAS	National Plan of Integrated Airport System
NPRM	Notice of Proposed Ruling
NSDD	National Security Decision Directives
NSEP	National Security Emergency Preparedness
NSL	National Simulation Laboratory
NSSF	National Airspace System Simulation Support Facility
NTSB	National Transportation Safety Board
NWS	National Weather Service
O.O.	Other Objects
OATS	Office Automation Technology System
OCAT	Oklahoma City Airport Trust
OCR	Optical Character Reader
ODAPS	Oceanic Display and Planning System
OFDPS	Offshore Flight Data Processing Systems
OMB	Office of Management and Budget
OSHA	Occupational Safety and Health Administration
OMEGA	Very Low Frequency, Continuous Wave Radio Navigation System Operating in 10 -14 KHZ Frequency Range
OPM	Office of Personnel Management
OWCP	Occupational Workman's Compensation Program
PAM	Peripheral Adapter Module
PAMRI	PAM Replacement
PAPI	Precision Approach Path Indicator
PCB	Polychlorinated Biphenyl

PCB	Printed Circuit Board
PC&B	Personnel Compensation and Benefits
PCRM	Parallel and Converging Runway Monitors
PCS	Permanent Change-of-Station
PCS	Power Conditioning System
PD&E	Planning, Directions, Evaluations
PDME	Precision Distance Measuring Equipment
PFC	Passenger Facility Charge
PIC	Pilot in Command
PL	Public Law
PMIS	Personnel Management Information System
PMS	Performance Management System
PPI	Plan Position Indicators
PPIMS	Personal Property In-Use Management System
PRM	Precision Runway Monitors
PRMS	Performance Management and Recognition System
R&D	Research and Development
RAIL	Runway Alignment Indicator Lights
RAPCON	Radar Approach Control
RASS	Radar Analysis Software System
RBDE	Broadband Radar Remoting and Display Equipment
RCAG	Remote Center Air/Ground Communications Facility
RCE	Radio Control Equipment
RCF	Remote Communications Facility
RCL	Radio Communications Link
RCR	Routing and Circuit Restoral System
RCMS	Runway Configuration Management System
RCO	Remote Communications Outlet
RCOM	NAS Recovery Communications
R&D	Research and Development
REAP	Records Examination Assistance Program
R,E&D	Research, Engineering and Development
REIL	Runway End Identification Lights
RFI	Radio Frequency Interference
RFP	Request for Proposal
RML	Radar Microwave Link
RMLR	Radar Microwave Link Repeater
RMLT	Radar Microwave Link Terminal
RMM	Remote Maintenance Monitoring
RMMS	Remote Maintenance Monitoring System
RMS	Remote Monitoring Subsystem
RNAV	Area Navigation
RSPA	Research and Special Programs Administration
RTCA	Radio Technical Communication for Aeronautics
RTF	Radar Training Facility

RTR	Remote Transmitter/Receiver
RVR	Runway Visual Range
RVV	Runway Visibility Value
SAFE	Safety Activity Functional Evaluation
SAM	System for Acquisition Management
SARPS	Standards and Recommended Practices
SARTS	Stand Alone Radar Training System
SBIR	Small Business Innovative Research
SCFM	Standard Cubic Feet Per Minute
SCT	Southern California TRACON
SEI	System Engineering and Integration
SFO	Single Frequency Outlet
SIAP	Standard Instrument Approach Procedure
SIC	Second in Command
SIDP	Supervisory Identification and Development Program
SMP	Special Maintenance Project
SPAS	Safety Performance Analysis Subsystem
SPCC	Spill Prevention Counter Measure and Control
SRAP	Senor Receiver and Processor
SSB	Single Side Band
SSCL	System Support Computer Complex
SSR	Secondary Surveillance Radar
SSR	Solid-State Radiation
STAR	Southern California Terminal Airspace Realignment
STDM	Statistical Time Division Multiplexing
STORM	Stormscale Operation and Research Meteorology
SUA	Special Use Aircraft
SUPS	Suspected Unapproved Parts System
TAA	Terminal Advanced Automation
TAC	Technical Activities Committees
TACAN	Tactical Air Navigation
TATCA	Terminal Air Traffic Control Automation
TCA	Terminal Control Areas
TCAS	Traffic Alert and Collision Avoidance System
TCCC	Tower Control Computer Complex
TCS	Tower Communications Systems
TDLS	Tower Data Link System
TDWR	Terminal Doppler Weather Radar
TELCO	Telephone Company
TELPAC	Telephone Package
TSARTS	Terminal Stand Alone Radar Training System
TERPS	Terminal Instrument Procedures
TM&O	Telecommunications, Management and Operations
TMS	Traffic Management System
TMU	Traffic Management Unit

TRACAB	Terminal Radar Approach Control in the Tower Cab
TRACON	Terminal Radar Approach Control
TRB	Transportation Research Board
TSC	DOT Transportation System Center
TSSC	Technical Support Services Contract
TVOR	Terminal Very High Frequency Omni- Directional Radio Range
TVSR	Terminal Voice Switch Replacement
TWA	Traveling Wave Antenna
TXP	Military Designation for a Radar Beacon Processing System
UAS	Uniform Accounting System
UHF	Ultra High Frequency
UPS	Uniform Payroll System
USAF	United States Air Force
USCG	United States Coast Guard
USD	Utilization, Screening and Disposal
VASI	Visual Approach Slope Indicator
VDP	Visual Descent Point
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
VOLMET	Meteorological Information for Aircraft in Flight
VOR	Very High Frequency Omnidirectional Radio Range
VORTAC	VOR Co-located and TRACON
VOT	VHF Omnidirectional Range Test
VRS	Voice Response System
VSCS	Voice Switching and Control System
WCP	Weather Communications Processor
WIGS	Within - Grade Salary Increases
WIMCC	Wisconsin Metroplex Control Complex
WMSC	Weather Message Switching Center
WMSCR	Weather Message Switching Center Replacement
WPMS	Work Program Management system
WX	Weather

(Rescission Proposal)
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
OPERATIONS APPROPRIATION

Program and Financing (in thousands of dollars)

Identification Code:		FY 1993	FY 1994	FY 1995
69-1301-5-1-402		Actual	Estimate	Estimate
Program by activities:				
Direct program:				
00.11	Human resource management	0	-2,750	0
10.00	Total obligations (object class 25.2)	0	-2,750	0
Financing:				
40.35	Budget authority (appropriation rescission proposal) (R94-29)	0	-2,750	0
Relation of obligations to outlays:				
71.00	Total obligations	0	-2,750	0
72.40	Obligated balance, start of year: Treasury balance	0	0	-330
74.40	Obligated balance, end of of year: Treasury balance	0	330	0
90.00	Outlays	0	-2,420	-330

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

**OPERATIONS
(Rescission Proposal)**

This proposal, transmitted November 1, 1993, includes savings from the elimination of a subsidy to the Mid-American Aviation Resource Consortium (MARC). The 1993 appropriation is sufficient to fund MARC activities through 1994. Furthermore, Federal subsidies are not required to maintain this private training program. Of the five schools currently operating a private air traffic controller training program, only MARC receives a Federal subsidy. The proposal also would eliminate Federal grants to vocational technical institutions to support aircraft maintenance programs. There are enough trained personnel to meet the need for maintenance technicians and there are numerous privately funded, self-supporting training programs that are more than adequate to meet industry's needs.

GRANTS-IN-AID FOR AIRPORTS
(AIRPORT AND AIRWAY TRUST FUND)
(Rescission Proposal)

Program and Financing (in thousands of dollars)

Identification Code:		FY 1993	FY 1994	FY 1995
69-8106-5-7-402		Actual	Estimate	Estimate
Financing:				
21.49	Unobligated balance available, start of year: Contract authority	.....	.....	488,200
24.49	Unobligated balance available, end of year: Contract authority	.....	-488,200	-488,200
69.36	Contract authority rescission proposal (unobligated balances) (R94-56)	.....	-488,200	.....
Relation of obligations to outlays:				
71.00	Total Obligations	.....	.....	.....
90.00	Outlays	.....	.....	.....

GRANTS-IN-AID FOR AIRPORTS

(AIRPORT AND AIRWAY TRUST FUND)

(Rescission Proposal)

This proposal would eliminate funds that are not available for obligation due to obligation limitations.

This proposal assumes that the authorization for this program, which expired September 30, 1993, will be extended by the Congress.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FACILITIES AND EQUIPMENT (AIRPORT AND AIRWAY TRUST FUND)
(Rescission Proposal)
Program and Financing (in thousands of dollars)

Identification code
69-8107-5-7-402

	FY 1993 <u>Actual</u>	FY 1994 <u>Estimate</u>	FY 1995 <u>Estimate</u>
Program by Activities:			
00.04 Mission Support	---	-26,275	---
00.05 Housing, Utilities, and Miscellaneous Facilities	---	-13,982	---
10.00 Total Obligations (object class 25.2)	---	-40,257	---
Financing:			
40.36 Budget authority (appropriation rescission			
proposal (unobligated balances) R94-30)	---	-40,257	---
Relation of obligations to outlays:			
71.00 Obligations incurred, net	---	-40,257	---
72.40 Obligated balance, start of year	---	---	-32,206
74.40 Obligated balance, end of year	---	32,206	22,544
90.00 Outlays	---	-8,051	-9,662

This proposal, transmitted November 1, 1993, reflects savings by eliminating the Airway Science program consistent with the National Performance Review. The program has achieved its goal of establishing high quality aviation curricula in universities and post-secondary schools that no longer require support from FAA.

WITNESSES

	Page
Conti, Gene	415, 943
Daschle, Linda	943
Forte', T.P	1
Hinson, D.R	415
Johnson, R.E	1
Keller, C.E., Sr	1
Kruslicky, M.A	415
Levin, Bob	415
Li, Allen	415
Loeb, B.S	1
Mead, K.M	415
Pollard, William	943
Pozesky, Martin	943
Stoer, Nick	943
Sweedler, B.M	1
Vogt, C.W	1
Wurster, Bob	415

INDEX

Federal Aviation Administration

	Page
Access Control.....	582, 583
Acquisition Process:	
Acquisition Policy and Procedures	907
Improvement Plans	910
Level I, II, III Major System Acquisitions	841
Major Accomplishments.....	908, 909
Mission Need Statement & Acquisition	897
ADP Streamlining	737
Advanced Automation System (AAS):	
AAS Lab Utility Costs	748
AAS Reviews—Completion Dates	491
AAS Reviews—Findings	585
AAS Reviews: FAA & Center for Naval Analysis.....	489, 588, 945, 947
ACCC/AERA	592
Accelerated Deployment	591
Accelerating TAAS Development	595
Additional Controller Feedback	591
Advanced Automation System: Mr. Hinson's Statement	466
ARTCC Modernization Funding	899
CNA Conclusion on Software Architecture	593
CNA Review and Findings.....	588, 947
Cost for IBM Staff	596
Cost Overrun	948
Discussions with DCAA Auditors	596
FAA Cooperation on AAS Audits	487
Field Support	899
Financial Statement	917
Implementing CNA Recommendations	588
ISSS Architecture	593
Level of Controller Input	951
Loral and Development & Demonstration Facility (DDF)	591
Loral Approach to Prototype System	951
Loral Contract	950
Loral vs. CNA Proposals	590
Loral vs. FAA Schedule	590
Loral's "Fast Track" Approach	590
Loral's Cost Estimate	591
Loral's Proposal to Restructure Contract	590
New Monitoring Techniques	589
New TRACON System	592
Performance of Support Contractors	589
Previous FAA Testimony on AAS	593

Advanced Automation System (AAS)—Continued	Page
Previous Management Deficiencies	589
Prime Contract Funding	846
Prime Contract Procurement Funding	899
Programming New Lines of Code	950
Reaching Decision on Program	588
Replan Cost Estimate	586
Reporting Cost Overruns	586, 948
Restructured without ACCC/New TRACON System	592
Revised Funding Estimate	595
Scheduled Delay	946
Status Report	594
Submission of Cost/Pricing Data	596
Support Contractor Funding	897
TAAS Problems	595
Terminal Area Automation System (TAAS)	595
Timetable for Future Decisions	588
TRW Report on System Software	593
Advanced Landing System	911
Advisory Circulars	939
Advisory Committees	618
Age 60 Rule	516, 517
AIP Discretionary Funds	799, 819, 836
AIP—Investment Criteria	574, 819
Air Cargo Industrial Complex Facilities	501
Air Carrier Tracking of Delays	959
Air Traffic Assistants	734
Air Traffic Control Corporation:	
Air Traffic Control Corporation	469, 497, 529
Assets and Liability	498
Budget Enforcement Act	498
Certification and Flight Inspection	499
Corporation and Budget Enforcement Act	498, 538
Corporatization	533
CWF Productivity Under	530
FAA's Corporate Technical Center	929
Financing	538
Structure and Rates	498
Studies for Conversion to	530
The Corporation and Research	929
Air Traffic Controllers:	
ATC Supervisors—FAA Staffing Reductions	523
Controller Work Force	735
End-of-Year Employment	641, 730
Future Requirements for ATC Training	513
Locality Pay-CWF	797
Productivity Performance Measures	634
Productivity Under ATC Corporation	530
Rotational Shifts	677
Staffing at Level 1 Towers Converted to Contract Towers	679
Staffing Requirements	756, 757
Terminology	956
Air Traffic Delays	545, 549, 959
Air Traffic En Route Centers—Positions and Employment	648

	Page
Air Traffic Overtime Hours	734
Aircraft Hardening	927
Aircraft N-1 Utilization	757
Aircraft O&M Costs—Old Aircraft	747
Aircraft Purchase Loan Guarantee Program	792
Aircraft Separation	790
Airport Congestion Delays	958
Airport Improvement Program (AIP):	
Airport Improvement Program: Mr. Hinson's Opening Remarks	468
Airport Issues Shutdown in AIP Grant Program	566, 567
Discretionary Funds	836
Funding for Non-LOI Airports	572
FY 1993 Discretionary Grants	799
Goals and Performance Measures	819
Grants with No Outlays in Two Years	577, 816
Impact of No AIP Authorization	500
Investment Criteria	574, 819
Leadership in Airport Development	577
Management Improvements	576
Obligation Limitation in 1995	566
Project Selection Process	819
Senate Reauthorization Bill	500
Airport Noise:	
Airport Noise	505, 577
Congressional Legislation	579
IG Recommendation on Incompatible Development	578
Mitigation Measures	579
Airport Security	518
Airport Security Coordinators—GAO Report	583
Airport Security—FAR 107 and 108 Revisions	583
Airway Facilities Enrollments	748
Alaska NEXRAD Systems	911
Allocating Security Resources	755
Analysis of En Route Center Equipment Performance	902
ARSR-4 Long Range Radar	854
ASDE-3:	
Location Data	870
Site Selection	917
ASR-9 Site Implementation	849
ASR-11 Schedule and Cost	899
ATC Facility Modernization Locations	873
Augmented Crew Concept for Flight Attendants	521
Aviation Accident and Fatality Rates	620
Aviation Activity Forecasts	643
Aviation Medical Examiners User Fees	746
Aviation Workload Indicators	522, 616
Bill Language: Provision of Aviation Services	734
Biographical Information:	
Mr. Conti, Deputy Assistant Secretary for Budget and Programs (OST)	477
Mr. Hinson, FAA Administrator	476
Ms. Daschle, FAA Deputy Administrator	944
Blast Management Technologies	927
Blue Ribbon Panel Report on Pilots and Maintenance Technicians	684, 699
Buyouts	524, 741

Center for Advanced Aviation Systems Development (CAASD)-Mitre:	Page
Comprehensive review	924
Cost Comparisons (Mitre)	926
Costs	924
RE&D Center for Advanced Aviation System Development	920
Scope of Work	924
Center for Management Development:	
Award for Director	564
Facilities	565
Need and Costs	515, 563, 748
Center for Naval Analysis:	
Conclusion on Software Architecture	593
Review and Findings	588, 947
Centralized Scheduling System	541
Centralized Training	754
Centralizing Production of Flight Procedures	509
Certification Program	558
Civil Aviation Security:	
Consolidation of Security Field Offices	755
Training	754
Workload Estimates	747
Closing Remarks	522, 963
Clover Field and Southwest Airport	940
Comments by Mr. Wolf	961
Comments by Mr. Coleman	961
Commissioned Facilities	653
Commuter Slot Rule—Impact at O'Hare	520
Comparative Reduction in Operating Funds	525
Computer Based Instructions (CBI)	934
Conferences (FAA Sponsored)	563
Consolidation Efficiencies	541
Consolidation of Flight Inspection Operations	963
Consolidation of Security Field Offices	755
Consolidation Plan	597, 962, 953
Continental Concerns	936
Contract Maintenance	651, 653, 701, 741
Contract Tower Program:	
Contract Tower Program	528, 790, 942
Grand Prairie Airport	680
Locations to Convert	678
NATCA Letter on Contracting Level 1 Towers	683
Savings	529, 683
Towers Not Meeting Establishment Criteria	678
Contracts—TRACON Facilities	792
Controllers:	
Controller Work Force	641, 730, 735
Future Requirements for ATC Training	513
Productivity Performance Measures	634
Productivity Under ATC Corporation	530
Rotational Practices—NTSB Recommendations	553
Rotational Shifts	677
Staffing at Level 1 Towers Converted to Contract Towers	679
Staffing Requirements	756
Terminology	956

Controllers—Continued	Page
Training at the Academy	512
Controlling Obstacle Verification Checks	963
Corporation and Budget Enforcement Act	538
Corporatization	533
Cost Effectiveness of Alcohol Testing	522
Crew Pairing	788
Criminal Investigations	919
D-BRITE:	
Benefit/Cost Data	907
Funding/Benefits	907
Delays:	
Air Carrier Tracking of Delays	959
Air Traffic Delays	545, 549
Airport Congestion Delays	958
Definition	957
Financial Impact	545
Improvements in Delay Measurements	543
Measures for Modal Transportation Delays	959
Preventable and Unpreventable Delays	542
Reducing Airline Delays—AAS	549
Types	958
Denver Airport:	
Continental Service	492
Costs	493
Delayed Opening Date	494
Sixth Runway	493
Denver Management Conference	560, 493
Depot Spare Funding	651
Designated Mechanic Examiners (DME)	554, 555
Detroit Airport Runway Extension	511
Diamond Head Center Radar Approach Control Facility	910
Differences Between MCF's and TRACONS	601
Digital Radar Data—Nantucket Island	894
Direct Access Radar Channel System	902
Direction Finder System:	
Field Delivery and Commissioning	917
Systems in Storage	916
Display Channel Complex	901
Distance Learning	683
Distribution of Positions—By Office	607
Distribution Operations Positions by Activity	610
DOD Base Closures	742
DOD Sponsored FFRDCs—IG Report	925
DS&SS Financial and Staffing Resources	662
DUATS:	
FSS vs. DUATS Use	955
Impact of FSS Staffing	542
Rationale for Eliminating	954
Report on Restructuring the Program	541, 955
Restructuring DUATS	542
Survey of Use	542
EDS Technologies	926
Effectiveness of Reliever Airports	580

	Page
Employees by GS Grade Level	614
Employment Choices of Former FAA Personnel	519
Expanded East Coast Plan—Employees Affected by Pay Freeze	579, 699
FAA Access to Airline Delay Data	543
FAA Cooperation on IG Audits	488
FAA Coordination with EPA—Philadelphia Expansion	934
FAA Management Meeting in Denver	493, 560
FAA Meetings with GAO	504
FAA/FBI Airport Vulnerability Assessments	583
Facilities Equipment (F&E):	
First Year Obligation Rates	841
Obligations	839
Outlays	807
Facility Consolidation:	
Cost Assumptions	601
Establishment Criteria	597
Long Term Costs	599
New TRACON System Costs	601
TRACON Replacement	602
Feasibility of Part-Time AFSS	964
Federal Procurement Procedures	535
Field Maintenance:	
Buyouts for Work Force	741
Other Object Costs	655
Work Force End-of-Year Employment	732
Financial Impact of Delays	545
Financing ATC Corporation	538
Flight Crew Access Survey	584
Flight Inspection Program:	
Aircraft O&M Expenses	747
Consolidation of Flight Inspection Operations	963
Field Office Consolidation	509, 541
Flight Inspection Safety Concerns	539
Front Royal Accident	504, 539
Rental Space for Flight Inspection	963
Flight Plan for Training	754
Flight Standards Staffing Increase	745
Flight Status of Procedures Pilots	964
Forecasting	480, 486
Foregin Air Carrier Security Program	756
Foreign Manufactured Parts	557
Front Royal Airplane Accident	504, 539
FSS Consolidation Schedule	632, 645
Future Requirements for ATC Training	513
FY 1993 AIP Discretionary Grants	799
General Accounting Office:	
Acquisition Management	425
Administrator:	
Turnover of	456
Travel by	456
Advanced Automation System	416, 428, 452
Advanced Automation System Schedule	417

General Accounting Office—Continued	Page
Advanced Automation System Managers	456
Airport Improvement Program	418, 438
Air Traffic Control Corporation	452, 465
Air Traffic Control Modernization	416
Work Force Buyout Provisions	461
Contracting Out ATC Towers	463
Denver Airport	458
Explosive Detection Equipment	464
Facilities and Equipment Account	424
Investment Criteria	459
Investment Criteria:	
Airport Improvement Program	460
Facilities and Equipment	459
Letters of Intent	461
Letters of Intent	461
Microwave Landing System	431
Operations Account	433
Security Research and Development	418, 442
Voice Switching and Control System	432
Work Force:	
Buyout Provisions	461
Contracting Out ATC Towers	463
Reductions	417, 434, 454
Training	436, 463
Work Force Employment Levels	448
Work Force Reductions	417, 434, 454
Work Force Training	436
General Aviation Action Plan	468
General Aviation Instrument Operations	650
General Counsel's Letter on FAA Budget Request	673
Global Positioning System (GPS):	
Cost Anticipated with GPS	791
Decisions on Category II/III Landings	604
Differential Corrections Over Loran-C	935
Global Positioning System (GPS)	937
GPS and Loran-On-Air Test and Evaluation	936
International Acceptance	604
Remaining Technical Challenges	604
GSA Rental Cars	789
Grand Prairie Airport—Contract Tower Program	680
Grants in Aid for Airports (See Airport Improvement Program)	793, 940
Gregory May:	
IG Investigation of training	565
Management Training	514, 563
Ground Station Satellite Systems	742
Handling Increased Capacity After Staff Reductions	479
Headquarters Administration:	
Financial and Staffing Resources	670
Funding Level	649
Staffing	749
Health Benefits	728
High Density Slot Rule—Business Express Request	491, 504

	Page
Housing Units	890
Human Factors.....	553, 554
IG Audits and Investigations:	
Audit on Airport Security Access Controls	581
Audit on Procurement Practices of NAS Program	721
Investigation on Gregory May Training	565
Recommendation on Incompatible Development/Airport Noise	578
Recommendations on Inspection Program	556
Report on DOD Sponsored FFRDCs	925
Report on Procurement of Worker's Compensation Management System ..	915
Report on Real Time Weather Processor (RWP)	905
Report on Smoke in the Cockpit	701
Impact of Budget Cuts on Airline Commission	526
Impact of Staffing Reductions	478
Increase for En Route Radar Facilities	901
Increased Costs for Weather Observation Services	632
Inspection Program:	
IG Recommendations	556
Inspection Program	555
Targeting Staff Resources	556
Investment Criteria:	
Compliance with OMB Guidance	575
Report by R,E&D Advisory Committee	575
Type of project	575
Joint-Use Military Airfields	795
Leased Telecommunications Service	656
Letters of Intent (LOIs):	
Change in Use	571
Collateral for Private Financing	572
Funding Based on Economic Criteria	571
Meeting Requirements	572
Model for Evaluations	571
Policy	819
Level 1 Towers Not Meeting Criteria	679
Level I, II, III Major System Acquisitions	841
Limited Consolidation and New TRACON System	597
LINCS:	
Detailed Schedule	656
Funding Profile	655
Recurring Savings	655
Schedule	655
Listing of Airports with Capacity Problems	797
Locality Pay—CWF	527
Logistics Center—O&M Cost	650
Long Range Radars:	
Leapfrog Project	919
Maine Radar—Status and Schedule	901
Loral:	
AAS Contract	950
AAS Cost Estimate	591
Approach to AAS Prototype System	951
"Fast Track" Approach	590
Loral and Development & Demonstration Facility (DDF)	591
Loral vs. CNA AAS Proposals	590

Loral—Continued	Page
Loral vs. FAA AAS Schedule	590
Proposal to Restructure AAS Contract	590
Loran-C:	
For Weather-Balloon Tracking	791
Loran—C/GPS Augmentation	791
Loran and GPS—Future System Mix	936
Loran and GPS Compatibility	936
Transition Policy	791
Los Angeles—Transfer of Funds	826, 836
Low Density Radio Communications Link (LDRCL)	930
Maine Long Range Radar:	
Future Funding Requirements	901
Status and Schedule	901
Maintenance of ATC Equipment	523
Maintenance Technicians	750, 751, 752
Management Training—Gregory May	514, 563
Measures for Modal Transportation Delays	959
Meetings with GAO	504
Mid-America Aviation Resource Consortium	566, 932
Mission Need Statements	908
Microwave Landing Systems (MLS):	
Funding for Production	604
Reason to Continue Development	605
Microwave Systems	931
Mode S:	
Anticipated Contractor Claims	920
Ground Location Schedule	862
Modernization Program Delays	538
Moving Beyond “Checklist” Mentality	755
Mr. Hinson’s Formal Statement	470
NAS Logistics:	
Full Time Position Reductions	738
Fourth Quarter Obligations	756
NAS Supply Support Additional Funding	738
National Communications System (NCS)	931
National Plan of Integrated Airport Systems (NPIAS)	577
National Route Program	756
National Weather Graphics Program: Model 1 Full Capacity (M1FC)	932
New Jersey Final EIS	701
New TRACON System	592, 599
Next Generation Weather Radar (NEXRAD)	857, 901
Non-Controller Work Force Reductions	523
Non-Corporation Research	929
NTSB on ATC Rotational Practices	677
NTSB Report on N82 Accident	963
Oceanic System Development and Support	918
Office of the Chief Counsel:	
Senior Positions	664
Staffing	748
Offsetting Collections	894
Opening Remarks	466, 943
Operating Expenses	605
Operations Travel Requirements	737

Operations:	Page
Position Distribution by Activity	610
Position Distribution by Office	607
Other Services	629
Travel Cost Data	629
OST Reductions to Budget Request	524
Overseas Personnel	666
OWCP Claims and Case Management Funding Profile	915
Passenger Facility Charges	575, 826
Pay Demonstration Program:	
Pay Demonstration Program	495, 527, 752
Program at Chicago	519
Program vs. PCS Moves	528
Pay Freeze Related to EECF	579, 699
Permanent Change of Stations (PCS)	737, 742, 746
PFC Proposal	576
Philadelphia Airport:	
FAA Coordination with EPA on Airport Expansion	934
Precision Runway Monitor	911
Phoenix Skyharbor Airport Airport-Third Runway	966
Pilot Report Structure	541
Policy Studies	673
Portable Electronics Devices	511, 549, 550, 551
Positions and Employment Summary	612
Precision Automated Tracking System (PATS)	900
Precision Landing System Mix	939
Precision Runway Monitor Program:	
Installation Schedule	935
Philadelphia Airport PRM	911
Precision Runway Monitors	501, 846
Preventable and Unpreventable Delays	542
Process for Site Selection of New Equipment	677
Procurement of Workers' Compensation Management System—IG Report	915
Propeller Controller System	788
Radio Communications Line (RCL)	930
Real Time Weather Processor (RWP):	
IG Report on RWP	905
RWP Software to WARP Contractor	906
Records Servicing and Analysis Activity	746
Regulatory Burden on the Airline Industry	551, 939
Reliever Airports:	
Effectiveness of	580
FAA Review of	580
Reduction in Set-Aside	581
Relationship of Reliever Airports and Central Airport Facilities	503
Report on in-Flight Cockpit Smoke Emergencies	710
Reprogramming of Flight Inspection Flight Hour Funding	747
Requirement for Backup Emergency Communications System	904
Research and Development Weather Projects	894, 896, 897
Restructuring DUATS	542
Revenue Diversion:	
Changing Grandfather Provision	569
Complaints	568
Fair Rental Value	570

Revenue Diversion—Continued	Page
Grandfather Clause	569
Los Angeles	570
Minimizing Diversion/Vigorous Enforcement	570
Notification of Sponsor	569
Process to Identify Diversion	569
Process to Investigate	568
Revenue Diversion	567, 568, 938
Roswell, NM Radar Funding	967
Routing and Circuit Restoral (RCR) Project	920
Rulemaking Cost-Benefit Analysis	522
RWP Software to WARP Contractor	906
Safety Indicators Program	559
Safety Performance Analysis System (SPAS)	557, 753
Satellite Navigation and Communications Systems	467
Satellite Navigation Program	602
Schedule for Congressional Action	496
Schedule for New TRACON System	599
Security Airline Passenger Screening Results	660
SEI:	
Award Fees	891
Staffing Table	891
Shutdown in AIP Grant Program	567
Smoking Incident on American Airlines	521
Society of Automotive Engineers	632
Spares and Repairs Funding	738
Sprint Protest Against Government Systems Inc	792
Stability of FAA Funding	533
Staffing at Level 1 Towers Converted to Contract Towers	679
Staffing Levels of Procedure Specialists	964
Staffing Reductions	524, 735
Staffing Standards Review Committee	757
Status of ATCT Establishment Sites	890
Status of Foreign Security Technology	518
Stocks and Stores—Initial Request	651
FAA Strategic Plan	467
Studies for Conversion to ATC Corporation	530
Studies to Funding Cuts	525
Sunday Premium Pay	526, 758
Suspected Unapproved parts (SUP)	508, 919
Synthetic Vision Research	929
System Support Lab Improvements	900
TACAN:	
Antenna Operational test Findings	912
Operational Test Report—Executive Summary	912
Slippage of Procurement	965
Changes in Specifications on Procurement	965
Retest Time for	965
Impact of Failing Operational Retest	965
Air Force Involvement with Testing	965
Target Figure vs. Budget Figure	525
Taxi-In Delays	543
TCAS	552, 789

Technical Center:	Page
Budget and Staffing Data	662
Operation and Maintenance Funding	900
Under the ATC Corporation	929
Telecommuting Centers	961
Tenure of Mr. Hinson	487
Terminal Doppler Weather Radars (TDWR):	
Adequate Detection Capability	905
Contract for Delivery	905
Major Cause for Delay	905
Radar Siting Problems	904
Status of Deliveries and Basis for fiscal year 1995 Funding Request	741
Third Chicago Airport	510
Tower Replacements:	
Candidate Listing	890
Funding and Construction Status	879
Tower Replacement Summary Table	877
Tower Streamlining Program:	
Impact on Controller Pay	679
Streamlining Program	529
Union Opposition to	529
Trace Technology:	
Development	928
Standards	928
TRW SETA Contract	892
Union Opposition to Tower Streamlining	529
Universal Access Control	584
University Controller Training Program	670
Vocational Technical Training Institution Grants	699
Voice Switching and Control System (VSCS):	
430 Position Switch Operational Requirements	903
Availability Contract Specifications	903
ISSS Software Production	903
Lack of Engineering Development Funding	911
Maintaining Schedule	903
Prime Contract Cost	849
TSARC Decision	902
Voice Switching and Control System (VSCS)	847
Weather and Radar Processor (WARP):	
Acquisition Strategy	906
Development and Limited Production	897
Mission Need Statement and Acquisition Plan	897
Risk Reduction Activities	906
Weather Message Switching Center Replacement (WMSCR).....	915, 916
Workers Compensation Program.....	670, 915
Workload Indicators and Industry Trends	616

National Transportation Safety Board

Accident Investigation Reimbursement	39
Accident Litigation	36
Accident Report Timeliness.....	114, 116
Administrative Law Judges	244
Civil Penalty Appeals	244
Disposition of Appeals	245

Administrative Law Judges—Continued	Page
Emergency Appeals	244
Staffing	244
Workload	245
Aviation:	
1993 Accidents	2
Accident Investiga. Reimbursement	144
Accident Statistics.....	81, 261
Air Carrier Accidents	158
Air Traffic Control	83
Air Traffic Control Corporation	81
American Airlines Flight 102.....	31, 102, 36
Blind Spot Aviation Accidents	263
Aviation Safety	55
Bogus Parts	51
China Eastern Airlines Accident	144
Clover Field, TX Accident	263
Columbus, OH Aviation Accident	86
Commuter Aircraft.....	83, 84, 89, 262
Continental Airlines Accident at LaGuardia	264
DC-10 Airplane Brakes	147
Digital Cockpit Voice Recorders	156
FAA Aircraft Usage	99
FAA Flight Safety Procedures	90
Flight Attendant Training	137
Flight Attendant Safety Study	137
Flight Crew Performance Study	86
Flying While Intoxicated Laws	148
Foreign Accident Investigations	140
Front Royal, VA Accident.....	48, 90
General Aviation Collision Avoidance System	91
Guantanamo Bay Accident	151
Hibbing, MN Accident	88
Icing.....	89, 148
Japan Airlines—Anchorage	92
LaGardia Airport Runway Overrun	264
Midair Collisions	263
Mountain Flying	91
Pegasus Rocket Special Investigation	151
Piper Cheyenne Recommendations	147
Public Use Aircraft	98
Slot Allocation System	260
TCAS Training Standards	156
Wake Vortex.....	81, 82
Zwingle, Iowa	98
Computerized Accident Simulations	31
Drugs and Alcohol.....	3, 40, 131, 132
Hazardous Materials:	
Superior, WI Accident	192
Hazardous Materials Safety Recommendations	214
Highway:	
Administration License Revocation.....	40, 172
Air Bags & Child Restraints	44
Alcohol—Highway.....	77, 78

Highway—Continued	Page
Antilock Braking Systems	79
Beltway Safety	44, 80
Bus Safety	57
Child Passenger Protection	76
Combination Trucks	80
DOT Grade Crossing Plan	68
Ft. Lauderdale Grade Crossing Acc.	67
Gary, IN Grade Crossing Accident	182
Grade Crossing Legislation	68
Grade Crossing Safety	69
High Risks Drivers Act of 1993	173
Heavy Truck Brake Defects	79
Heavy Truck Safety	57, 78, 80
Highway Grade Crossing Study	182
Highway Safety	55
Highway Traffic Safety Improvements	74
Intercession City, FL Accident	182
International Highway Signing	51
New Orleans Bridge Accident	67
Radar Detectors	45, 80
Schoolbus Safety	179
Seatbelts	74, 75, 76
Seatbelt Usage/Pregnant Women	75
Snyder, OK Schoolbus Accident	179
Teenage Drivers	77, 176
Truck Driver Fatigue	46
Vernon, NJ Bus Accident	33, 179
Intermodal Safety Issues	59
Marine:	
Barge Accident Statistics	65
Barge/Bridge Collisions	63
Barge and Towing Oversight	56
Barge Safety	262
Coast Guard Inspection Procedures	200
Commercial Fishing Vessel Safety	200
DOT Marine Safety Plan	65
Foreign Passenger Vessels	200
Marine Safety	56
<i>Noordam</i> and <i>Mount Ymitos</i>	209
QE 2 Recommendations	203
Recreational Boating Safety	56, 69, 70, 209
Small Passenger Vessel Rulemaking	200
Towing Industry Safety	262
<i>Yorktown Clipper</i> Accident	209
Most Wanted	58
National Performance Review	103
NTSB:	
Attrition Rate	259
Authorization	110
Automated Data Processing	132
Automation Plan	133
Budget Request	3, 101
Board Member Terms	110

NTSB—Continued	Page
Communications and Utilities	260
Conferences and Seminars	134
Cost of Living/Locality Pay	259
Drug Testing Program	259
Efficiency	247
Emergency Fund	131
Equipment	260
FTE Reductions	102, 103
Investigations and Studies	121, 124
Justifications	265
Litigation	133
Managers and Supervisors	113
Organizational Changes	247
Other Services	259
Senior Executive Service	113
Staffing.....	102, 110, 111, 113
Training	248
Transit Subsidy Program	248
Workload Data	133
NTSB—FAA Relationship	46
Office of Administration: Staffing	247
Office of Aviation Safety:	
Staffing	172
Aviation Accident Reports	172
Office of Research and Engineering:	
Recommendations	243
Staffing	243
Workload	243
Office of Surface Transportation Safety:	
Staffing	232
Reports	232
Recommendations	232
Pipeline:	
Colonial Pipeline Accident.....	37, 38, 40, 99
Emergency Flow Restricting Valves	217
Excess Flow Valves	217, 229
Natural Gas Pipeline Regulations	217
Northern States Power Accident	232
Pipeline Employee Training	217
Pipeline Inspection.....	99, 100
Pipeline Regulatory Program	101
Pipeline Safety	58
Underground Storage System Regulations	214
Railroad:	
Advanced Train Control.....	70, 71, 183
Amtrak Safety	73
APTA Triennial Safety Audits	199
Automatic Bridge Detection.....	66, 67
Cleveland RTA Accident	198
Collision Avoidance.....	71, 72
DOT Grade Crossing Plan	68
Florida Grade Crossing Safety	69

Railroad—Continued	Page
Ft. Lauderdale Grade Crossing Accident	67
Gary, IN Railroad Accident	32, 74, 182
Grade Crossing Legislation	68
Grade Crossing Safety	69
High Speed Rail	260
Kelso, WA Railroad Accident	192
Lakelake, FL Railroad Accident	72
Ledger, MT Railroad Accident	193
Locomotive Fuel Tank Study	197
Lugoff, SC Railroad Accident	73
Mobile, Al Amtrak Accident	2, 62, 63, 197
Positive Train Separation	53, 70, 183, 184
Rail Rapid Transit Safety	199
Railroad Bridge Sensors	66
Railroad Bridge Warning Lights	66
Railroad Event Recorders	193
Railroad Passenger Car Interiors	72
Railroad Safety	52, 53, 54
Railroad Tank Cars	197, 198
Stevensville, MI Railroad Accident	193
Superior, WI Accident	192
Track Safety Standards	198
Recommendations:	
Acceptance Rate	60, 116, 119, 121
Aviation Recommendations	156, 158
Coast Guard Acceptance Rate	62
Commuter Airline Recommendations	84, 262
China Eastern Recommendations	144
Hazardous Materials Recommendations	214
Icing Recommendations	148
Lugoff, SC Recommendations	73
Piper Cheyenne Recommendations	147, 148
QE 2 Recommendations	203
Surface Transportation Recommendations	232
Unacceptable Recommendations	62
Zwingle, IA Recommendations	98
Reinventing Government	47
Rulemaking:	
Excess Flow Valve Rulemaking	229
Small Passenger Vessel Rulemaking	200
Surface Transportation Rulemaking	239
Tank Car Rulemaking Comments	198
Transportation Safety Targets	59

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